PROCEEDINGS

Royal Musical Association



New

WAR

PROCEEDINGS

MUSICAL ASSOCIATION

FOR THE INVESTIGATION AND CORNECTED WIT

ART AND SCHENCE OF MORE

FOUNDED MAY 29, 1874

FIRST SESSION 1874-75

paint protestation a co. News

1875



ENGINE ASSOCIATION, 1996-6								_
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or Some are Provintes or Sortine. I. Invasional.

OF DESCRIPTION OF THE PERSON DESCRIPTION OF THE PERSONNE PROPERTY.

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Hermon Lawrence, Service or Astronom Jose Ross, Da.

Or you democrate or Wise to Street Intersection ((Shadole))

De J. Rosson Rosson, No.

On the Paradon or De Davie Desire or Street, were a

de um Pascecca er Roma Seneros'. In Just france, Do., R.A., Mo. Doc. Cook.

Mary State State on Territor Department of Australia August State State on Territor Department of Australia

Musical Association

INVESTIGATION AND DISCUSSION OF SUBJECTS

THE ART AND SCIENCE OF MUSIC.

104

Tox following letter, addressed by W. Hara Spettermode, Ex-

interested back in the theory and protein of Manor, that the Someans of a Border, wo miles who man behave of the supervision of a Border, wo miles who may be a more than a processing Border Minneal Border unjet on margin or meabour the forecast Minneal Border unjet on margin or meabour the forecast Minneal Border unjet on margin or meabour the forecast margin of the supervision of the margin of the margin of the margin of the supervision of the margin of the margin of the margin of the means of the margin of the margin of the margin of the means of the margin of the margin of the margin of the means of the margin of the means of the margin of the margin of the margin of the margin of the means of the margin of the means of the margin of the margin of the margin of the margin of the means of the margin of the margin of the margin of the margin of the means of the margin of the margin of the margin of the margin of the means of the margin of the margin of the margin of the margin of the means of the margin of

n meeting here, at which your presence is requested, on Thousday, April 16th, at 2.50 p m.

I am, Desc Sie, yours faithfully,
W. Rommander

The second second

A meeting took place at the residence of Mr. Spatierwoods, when the objects of the magnetical Society were discussed and a Compatible was appropriated.

Another macking was baid, by permining in the Boardroom of the Boark Kennington Hancur, on Fridry, May Stel, 1874, John Hillah, Eng., in the she'r, when served pysithenen smoothed shemedree as Original Members of the new Stoticty, and

rain were determined spec.

"Or Tow-ley that the of a fig. Baker Sharing, a General Marting, and the state of the state of

MUSICAL ASSOCIATION, FOR THE INVESTIGATION AND DISCUSSION OF SUBJECTS CONNECTED WITH THE ART AND SCIENCE OF MUSIC.

RULES. 1. This Association is intended to be similar in its overains.

tion to existing Learned Scalabes

2. The Members will consist of practice) and theoretics.
Manuscrea, as well as those whose researches have been director.

to the science of Accestics, the history of Blasic, or other Identity subjects.

3 The Association will hold its meetings us the first Mooring of sour meanly, from November to Jazz, as in a city o'clock pres.

when person will be read and discussed as at other Lerend Societies. These propers may test of any solicit connected with the Art or Sections of Mario.

4. Experiments and performance may be introduced, when selectly limited to the Marionica of the Process read.

5. Papers and Communications will be received from, or through, any Monther of the Association.

6. Reports of the Proceedings will be distributed to the Members, and will be unblished.

Members, and will be published.

7. It is not intended that the Association shall give Concrete, or undertake any publishments other than those of their own Pre-

or undertake any publications other than stone of their own Preceedings, and the Papers coul at their newlege.

3. The Election of Members will be by Hallot.

9. The memoranant will be vested in a Committee, to be

azzadly choted by the Members of the Association.

10. The annual calculption to the Association is One Gaines 1

CHARLES K RALEMAN, Hos. So.

*Depuls to Meson Chappel, 58 New Read Street, W., or or before the Sant Newdor in November.

SESSIONAL ARRANGEMENTS.

1874-5

First Notice-Monday, November 2nd, 1974; ments.' (Observed.)

Paper by Dr. W. H. Street, M.A., F.R.C.P., *On Extending the Courses and Increasing the Toron of Stringert Leature

Paper by H. H. M. Boussperr, Esq., M.A., Fellow of St. John's Coll. Oces. F.R.A.S., F.C.S., 'On Transcensors, or The Division of the Octave.' Forst Part. (Clastrated.)

Second Meeting-Menday, December 7th, 1874-

Paper by STRLET TAXLOR, Esc., M.A., Tries, Coll., Comb., On a Surrented Signal Strategy of the Established Physics

ALPEANDER JEEN ELEN, ENG., F.R.S., well orbited a Managing la Harmoneum, playing from sorm flate to seven shorps, by

Whitel Municipal Monday Terrange Sch. 1975.

Pance by J. Barnary, Hannards, Eng. * On the Application of Ward to String Instruments.' (Ethnicated by an approrates which will give none of the varied tonce of a String

Footh Mosting-Monday, February 1st, 1671-

Pager by Change E. Stormen, Esq. ' On the Follocies of Dr. Day's Theory of Hormony; with a Brief Oatlan of the Mornosts of a New System.

PERSONAL AUGMODERNIES

Fifth Montro-Monday, March Let. 1975.

Paper by John Hilliam, Enq., Vice-President, * On Musical Neuronistane.*

Such Meeting—Moreley, April 5th, 1875 :
Pager by Dr. Juny Statem, N.A., May, Day, Onco. 1 On

the Principles of Musical Notation."

Secont's Mosting-Monday, May Sed, 1975.

Paper by R. H. M. Boncapure, Req., M.A., E.R.A.S., F.G.S., Follow of St. John's College, Once, 'On Temperaments on, The Division of the Octava.' (Second Part.) Historical—

1. Poster of historical interest. 2. Permetter of Scales

and properties of Systems. 3. Instrumental morns of control

Bipith Meeting—Monday, June 7th, 1875:

Paner by Assument Jose State, Sec. F.R.S. 'Ulimbedium

of Just and Tempered Intension."

OFFICERS, &c.

r rounts, a

PRESIDENT.
The Rev. for Fancience A. Orac Owners, Nov., M.A., Max Doc. Own.,
Thef. Eds. Unit. Own.

WICE PRESIDENTS.
Graces, Security, D.C.L.
ECOLUMN JOHN, THE

Microscop, General Astronomer, Esp., Mrs. Dec. Contrib., Dref. Univ. Contr. Securious Section, May M.A. S.E.S., LL.D. Terrana, Probesso June, 1985, LL.D., So. do

CHAPTEL WHENDER, Step. Ed.S. | Step.

Character, Warrane, Roy, E.S. &.
Heritani, Soc., 1849.
Checker, Grane, Roy, F.S. &.
Line, Warrane, Roy, F.S. &. Mea.
Line, Comm. Roy, F.S. &. Mea.
Line, Comm.
Line, Comm. B. D., Eq.,
Line, Comm. C. &. Mea.
Line, Comm. M. P. Line, M. Mea. Die.
Line, Comm. R. W. M. M. A. E. Z. O.
Line, M. M. M. D. &.
Line, C. &. Mea.
Line,

NA ORGANAL MEMBERS
Adms, William Grifs, Eq., NA. | DOS. Donal E., Eq., Na. Dis

Y. H.J., Frederice Royal, College, A.C., for though Eddis, R.C.E., S. C.E., M.A., E.Z.M., Aktonomer-Allewy, J.A., E. M., A. C.E., L. C. Congo, Alexander S., Jan, Y. C. Cow, E. L., Su, H. Res. Mer. Const. Cow, E. L., Su, H. Res. Mer. Const. Comput. M. J., Bing, Mos. Res. Comput. M. J., Bing, Mos. Res. Comput. M. J., Bing, Mos. Res.

Therein, W. L., Dan, Man. Box.

Levy, G. A., Day, M.A.

Rasser, H., Mo., Let D.

Rasser, Limit J., Let D.

Rasser, Limit J., Day, Described to Market College, Conso.

Rasser, Limit D., Rep.

Descr., Rasser, District, Sep.

St. John's Galger, Cone
Frankle, the John's Kie.
Benner, Limit B., Berger, B., Berge

Delta, The last 'v. H., T. A., Mee.
The Other (Findam) For M., M. H.,
E. H.A.S. T.O.S. Bilder of St.
John's College, Once.
Divide, J. Freill, Reg., Non. Doc.,
Comp., Device Owner College, Older,
Mindy, M., Mind, Lipe

Dielge, J. Facili, Rey., Rina. Dar., Chaire. Professor Gwan. Colliere, Charten, Experient Calabriel, Elevan. Lieves, Exp., FLCCA Blo. Close G. E. Enj. Closerows. Black. Elso, D.A. Closerows. Black. Elso, D.A.

 170 Green, Storge, Eq., D.C.L. (Flow Proofing)

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Dealth-Nacoliton, J., Neg. Holman, The Ren Z, H A. Reynoll, V. C. Roysell, Nog., M.A., Bearon, William W., Eq., Max. Soc.

HE, Arthur, Eq. R E (God) Hosbin Effect F For the Yearsh

Salaman Charles E., Ess. Box Mers. Ecitic, John, Boy (Fine-President) Ecitor, Oop. C. H., Oeparies of St. Suppost He Sufficial. States, April J. Reg. South Mes Flow M.

Errona Alfred Esq. Spinister, Affred, Eq. 5 R.C.s. Sanson, States S., Etc., 5 R. Co. Mrs. Charles H., Etc., 7 A., Nov. Steiner, John, Ecq., M.A., Max. Duc. Onco., Chy. St. Panl's Cathedral. Stanford, C. Williams, Edg., R.A., On-gravine Triesty College, Cambridge.

Lann, Money C. Re-Station, To See Wes. S.A. (Sin-McCleogh, Mayor Martin, O. C., Esq., Non-Rec Owen Stephens, Stocket Jan, Esq. Stewart, Str. Labour, Present, Ent.

Stone, Dr. W. H., MA, FRGF Saliver, Arthur S. San Sylvenso, Protessus J. J., F.R.S. Trains, Seller, Esq., N.A., Yen, Coll. Monk, Libria George, Esq., Nur. Duc. Maura D Foresan Sar M. S. Oracl

Trube, Jensey, Esq., Mrs. Rec Osca. Wilson, James Reg Trune, The Res C, M A , Ten Coll. Oabster, H. S., Kim, M.A., Nun-Box Contage, Prof Time Edit. Outcome, Contage Albert, Esq. Troubed, The Key John M.A. Oundry, The Rev. Sty Fredt, A. Gore Unir Ones (Provided Perkinson, W. W., Sec. Tendel Perfessor John, P.S.R., LL.D.

Parents, Welter, Eng., Mrs. Eng. Page Walker, The Rev. El Aston, M.L. LLD, DCL Wandows Willia May F. Wildeson Richard, Esq., M.D.

Write Foury East, Man Dto. Con-

Matter H. R. A. Ter. Revised Call. Ogo; Miles, The Rev El Walter, Man. Bur Remainthum, Dr. A. M. Budop, C. E. R., Key, Boulain, Ospioin, R.N. Buttery, Barnoy, Sey Rholes, Affect, Ecc. M.A. Rivingson, September Ecc., M.A. Trink, --, Sep. M.A., Selfel Cal.

Fowler, W. W., Eco., M.A., Licente. Ourse Trustall John Esq. Young, Mrs. Fresholds Oct., Volley, Benry, Eco Witness, Barty Eco, Earl of P.C. Molecus Col Garner Higgs, James, Eop. Mon. Sac Ward, Min S. Bast M. J. B., Etc., Ch. Ch. Care. Komps, R. A., Etc. Ward, Riss S. Watson, Midnell, Eq. Weigh, W., Eq., 38 A. Wills, New Agents.

The Anthon of the regardite Proper are about respectful for the Applicate argument the time, as well as for the annualmen of the Anthonics

GEORGE ALEXANDER MACPARREN, Rec., Voc. Presences, or the Cours.

ON EXTENDING THE COMPASS AND D

THE TONE OF STEINGED INSTELLENTS, WIT ESPECIAL REFERENCE TO THE AUTHOR'S AT MR. MEESON'S ELLIPTICAL TENSION-BARS.

By Ds. W. H. Store, M.A., P.B.C.P.

Tax enthor, in communitary, concretolated the society, and emedally Mr W. Southwoods, He earthest everyoter, or he reconful establishment, and on the brilliant mesos included in the where instruction was commenced from the other side of the shield. The tendency to exclusiveness on the part of professional wasterns had perhaps, some naturation with this neglect of the study of the scientific hunch of the subject. Music, though one of the granical enjoyments granted to man, is not a mountly, His food, and the rule of multiral common that around creater demand to necessarily applicable to it. He believed at to be to the transt interest of all professional massages to encounce seatours, for it should not be forgotten that they formed an intelligent endsense, competent to duringuish seel from falso see SavaD, of Mr. Sodley Torior, and Professor Donkin. The varior manicises might gain from their amoteur brethren, and as a cone in noise he allieded to the recont attempts to introduce the Francis jitch at the Loudon open-benses

On Entending the Courses and

placed out of time, but they had not placed to French pitch. was at least a squeter of a note above the French despaces. If they had begun to time from the bottom nymarks, instead of cancelousy which had made the surferencess of the arrans on Turning to the medial miliect of his more, the author said that he had been, as some of his audience much be aware. he rought any that he had encounted by retroductor on old materimost. the contractionation remodelled, and he bound increased exhibited a double least, steront flows to the state stitch. COO on the organ, in the Kubibilities of 1872. The note was frequently the size of the instrument. There were three wars in which a string wight be made to give these slow ellentions: first, by in-Keneracton, which would require a court to new it. The feet plan, then, did not sower. He next tried racresse of thickness had found that this also fished, owing to its aptroon to renders create to ensurement of treasures vibration. The other means was to increase the specific gravity of the strano. was overed with heavy corner-wire, his the bear absence of a percoferts; and this proved to be feirly encountal, though protably gold or plefinum would assense still better. The combinled to his consulting Mo. Merous as to the woodship of year. Is was crident the belts of the instrument required to be made more homogeneous to effection, and stiffer without increasing the weight or bulk. Mr. Messon had carried out this idea must investmely. Ever string of white deal owered to an elizated known came of weakness and a break in the vibration body. The result is the respond of what the musicises term "wolf," or Secretary and followers of tone with a great becomes of negreprocess is equally analysable to the smaller member of the visite formir, and the arother asserted that he its adoction a common instrument one be made county count in tone to an old Italian

fiddle, whole it strengthens the topp of old instruments which, from dogsy or other capses, the power is small. The entireties of the mount is no new demant on traffic.

ment, and the housean he surgered at pleasure. As an emergic introduced to the seelest a years visiteint, who should noce an cost of which was In Dr. Other instruments were shown and tried, which were of considerable age and value. By way of placed, which was written by the commons down to CCC (the note now reached by De Stone's method's, and which could not here been played as written on the partraments in ordinary

The Courses remarked that the making of visites had always restanted appropriate of a resistence observing and over of the the work of old makers. He culculed the invention new brought forward, which he thought filedy to prove of man't

TRWPER-MENT: OR THE DIVISION OF THE OUTATE.

By R. H. M. Romagere, M.A., FRAS, Fig.S., Follow of St. John's College, Oxford

PART 1

Batter State Company					20	-
Streets of Internily is						
Fernatise of Intervals by						
a ex Engulse Cry						
Septem Systems						
Zorgiv Sperms						13
Rain for Thirds in Produ-						14
The Gournised Keylon Principle of Symmetrical					12	14

Symmetrical Americant of Greentl Thompson's Organ

Limesucces.

The interrigation which form the subject of the present connection from the origin to a providences. It is connected from the origin to a providence and the contraction registed the problem as a purely theoretical tea, make marketing and a comparation of the contraction of t

* The shoot of Europey is constantly found "seek" on these picase. This

the effect least, are those of soft-tened pinear with little power, and life crelinary organ disposes view-especially those old-fishioned, event-toned disposes, which are consider disposessions.

feathcoad, sweet-cased disposance, which are enjudy disapposance ofter the argue-healings of the present day. The constant perspace of these effects served as an indicatement to a stople of the entire process of the first interaction with the present adject of the improvement of interactions, and afterwards also the character of the interaction and afterwards also the character of the interact standage in the theory developed and the character of the interact standage in the theory developed and

the the sale of the increase standing to the theory developed. The problem to be dealt with reset risks and follows, on the Problem to 'A. Elsery of Hermony, formated on the Tempered Social,' by De Statismer — When manuful and anticolous shall be desired to the Company of the

new malarist to the glory of set—these it will be time usuagh to found a new theory of hammany on a mathematical base? This pussage was of ourselevable use in threeting attention to the prints of supportance is theory; it occurrent, however, some continues of ideas, as will be possed an insuchable.

In the first place, below why accurations can be done to as the translate of inclusive accuracy in the circus, it is then the near their off inclusive accuracy in the circus, it is clear that complete and compeniatories masser than the latest want in the we do that the complete accuracy is the compeniation of the we do that the complete proper consistent or subsider question have been stained here could then, yet an compeniation wanted and the stained latest of such a subsider of subsider question which will demonst a read as an accurate the subsiderable wanted which will demonst a read as an accurate of the latest the courter of the complete accurate the compensation of the compensation of which will demonst any accurate the compensation of the accuracy accuracy accurate the compensation of the compensation of the accuracy accuracy accurate the compensation of the compen

has been retain for performance in our large or another of the modal temperacutes. As a similar to provide by the retain the Lin the second place, a position will be provided by which the Lin the second place is being an a least source to the preformer, in those spaces are which, a confidence on the temperaportion to money. The hoteless we construed as to proper required it stablisms to the exclusive solution, as to be suppressingled it stablisms to the exclusive solution, and the number and simple in their described.

Again, the problem of informents has been solved in a

* Soc. however, Mr. A. J. Eller on the "Temperature of Marical Instrument with Final Toron" — Expel Society's Prescribings, 1881 of the note sounded to any generator,

resulting to control the notes of all entermanulish proceed by continuous arrive of consl fifther and this keyleard has been

popelracted and applied. The contains of ideas show allufed to arrive from the arrangine that the theory to be surplayed will be laued on the derivative of artika from some one barmonic series as well as from the division of the seture. Now this will never be tree. If never be more than approximations to the notes of any one busyment series. In some of the contents subsequently developed, conditions baring reference to the recognition of homoston will be combined for expected we may make our 48ths or our Goods period. This class of conditions is recorded as being derived.

In the present introductory paper, the principal properties of the class of gretterns dealt with will be established on a seenand masses, the naturing above softwed to will be emplained. and a brief account will be eiven of what may be called the 'orinciple of symmetrical armagement.' This principle is the foundation of the averagement of the keyboard above referred to a end the chief characteristic in, that any given interval, or com-

Before communing the treatment of these subposts it will,

evertonce. The letters E T, will be need as an abbreviation for the words 'sound temperament'. These ap octure, which is 13 E T. southmen, will be written as 12; the 52rd part of an

octavo will be written as \$4, or 22640. Five phase of documbs mill be recensily considered anticipat The following value for irrandermine vibrations ratios into the emeralent E. T. interval our be made too of hy any one who knows how to look out a logarithm to a table. They abrigade

Rena I .- To find the equivalent of a given vibrations ratio in 40 The ottest is the raterval, executed in E.T. suniforms.

Excepts 1,-To find the values of a perior fith, the vibr Lee 2 - 1771112

> Inc. 2 - PROGRA L = 000.0072 E I.V. - 1206465

1700213

The tree value of the porter \$85 solvehead by an exact proces to \$9 T 93000 BOOMS SOUTH BITTHE

Log: 5 = \$009406 Tor 5 - Military

Servicio - 4 - Intesa Thus a merion third amonds A completes by \$5314, or, as it is greatmile more entrusaced to more the result, a faile short of 4 armitions

DIESE Boxs II .- Ve find the vibrations ratio of an interval given in E. T. speciage

To the given number old who and value of Rack. Divide by 40. The result in the logarithm of the refit required Example.—The E. T. find is a southern. The Obstance sets, found we

Engalar Systems are such that all their notes one be arranged is a continuous series of cored 480s. Breaker Coolined Sections are not only revealer, but return into the more pitch after a certain possible of fifthe; arrest such evidendivides the estare into a certain number of sound intervals.

Error is deviation from a perfect interval.

Intervals taken provands are called positive, taken dos

Fifths are called positive if they have positive department, that is, if they are genater then E T. fifths; they are called anguthey if they have nonline desertion, that is, if they are less than H T fifthe. We saw that perfect fifthe ere more than 7

regiteres; they are therefore positive. Sestana are said to be positive or negative seconding as their filks are pasitive or negative

Barreley Carlinel Systems are said to be of the otherday node. time or negative, when the departure of 13 folio is ± r autic of

Thus, we shall see later that in the system of \$5 the departure of 12 fifths in I wait upwords, and the anstern in posters of the first order; in the system of 118 the departure of 12 fifths is 2 ender. In the coston of \$3 the descriptor of \$2 fifths is any took

the system of 20 the departure of 12 tilths is two units downwards and the system is negative of the second order. Systems of the first on long re-milled Primary of the second order Secondary

4. FORMETOR OF INTERNALS BY BRIDES OF FIFTEEN

When provenient of 46ths are maken of it is introducis expressed in E. T. recultones, any multiples of 12 (notation). may be softmeted or edded. As an example, we will consider some of the intervals formed by

temperature at \$10 hr J. of so E. T. senitore. This home tree. wised, we have the following intervals, amount others --Departure of 12 fibles = 14. For 13 × 7.5. - 8615 , and we subtened \$6, which represents

For 2 x 7.L as 14.L; and we subtract 12, which were write

* Seven-fillio resistant, formed by 7 fillio up. = 1.3... For 7 × 7.1, = 40.1, and we entired 46, which repeat

* Frondtibe services, formed by 5 fifths down on 1 - 5. For 5 x = 7.5, as = 25.6; and we add 26, which were contained

* These recommons were represented to the wriger by Mr. Partiett.

The Division of the Octors.

Or, if we consider the system of 21 is which the 55th in Departure of 12 fibbs = $\frac{7}{2} - \frac{1}{2}f_{\gamma}$ we have, annihily: Departure of 12 fibbs = $\frac{1}{2} - \frac{1}{2}f_{\gamma}$. Sever-diffusional time = $\frac{2}{2} - \frac{1}{2}f_{\gamma}$. Sever-diffusional time = $\frac{1}{2} - \frac{1}{2}f_{\gamma}$.

5. Reaman Sterree.

The importance of Eopske Systems arises from the symmetry of the reals which they form.
There I.—I. say regular system 5 areas fifth somitones and 7 fee-diths somitones make up as more contro.
For the denotions from E. 2, of the 5 cover-fifth somitones.

and 7 fire-fibbs sensitions make up an enter octave.

For the depictors from E. Z. of the 0 rever-fibbs sensitions with one of \$2.50 the 5 rever-fibbs sensitions with does to \$2.50 the 10 rever-fibbs sensitions we does to \$2.50 the 10 rever-fibbs sensitions are does to \$3.50 this down, having \$12 E. T. sensitions, which forms no notes octave.

Then the second fide semigons is 1 = 78, the tire fide semigons is 1 = 78,

and 5 are no differ emiliates, together with 7 for differ sentence, in ,— 0 (1 + 7 T) + 7 (1 - 8 T) = 0 + 30 T + 2 - 30 T = 12.

Theorem if — In any regular system the difference between the seven-differ sentence and the Sex-difful sentence is the deporture.

of 12 dish actions because of expect the 4-re-fifth excisions from the creation for the creation for the creation for the creation countries are except to the deporture of 12 dish is value, and it is positive if the dish excision part of the fifth exceptions.

The this transaction measurement of the fifth exceptions are part of the fifth exceptions.

separire if the little are negative.

For the serve-differ seconds up in one E. T. combane up and the departure of 7 filts up, and the free filth seconds down to which makes, on the whole, the departure of 7 filth up, and it is supported to the control of 1 filthe up, and if the single departure are positive, than the testes departure are positive, than the testes departure are positive, and if map then, negative.

tragens 2-h fifth of the system of $11 = 2 - \frac{1}{h}$, and it is neptive. The system fifth services $-1 - \frac{1}{h}$. From fifth receives $-1 + \frac{1}{h}$. where, subtracting the lower law, the definition m = 0.

6. Rentine Cottons States.

The importance of Bayaha Oydhol Bystone amou from the infaith fiveless of modulation in every discrime which is

possible in each systems when properly arranged; whereas in too, evoluted systems recogned modulations are liable to be impossible, ewent to the demand arisins for notes cotaids the

Theorem in .- In a Regular Cyclical System of order a the difference between the severalities experience and for fifther

For recolfur the defailing of eth order (departure of 12) fifths = + r entis), the properties follows from Theorem M. Parameter &-- In the section of \$2.00x 500x or 7.5.1

Eve-Office remittees = 1 - A where exhibition, the definence of II, which is the estate devided by

Hence t = 0 the system of 10 the fifth is $t = \frac{1}{10}$, and, as below, the

Constions.—This appropriation, taken with Theorem i., enables us say order, by introducing the consideration that each societies most conset of an integral number of units. The principal

Primary (Ist splet) Follows.

e unite	5-fills requires = y wide	in orders (Th. 1.)
1		
Sec	undary (End order) Per	idea.
11		119
	Prinary Nagaire.	
ż		81
	Secondary Nazation.	
2	6	50

The mode of formation in other cases is obvious: Passing over, for the process, the derivation of scales from this divided into a usual intervals, and r be the order of the system. the departure of each fifth of the system is \$12.7, asystems. Let the departure of each fifth of the ervices be 8. Then the

f, semitones (singo the octava, which is 15 rewitness is divided into a social mosts). House,

15 8 - n mg 8 - 5

ove (The us Cor), the departure of 12 fibbs - 1 use, - | ?; Where the departure of one fifth - A. realized, the departure of \$2.00kb is 2 mate. - 2.5%, wherear the de-

porture of one 600 m d. er A

Thomas would in a system of the 1th order the action be

divided into a const intervals, r + 7s is a mailtois of 12 cost r+7n is the number of units in the fifth of the system.

Then o. 25 is the fifth, and on7+1, if 3 be the departure of the $EDA_1 = 7 + \frac{r}{n}$ by Tb. iv.

and a is an integer by hypothesis-whoses the proposition From this proposition we say deduce converged by values of n and s. This is needed to incredigation endors of the harbor

orders. Custing out syntroles of 12, where necessary, from a

-7 -5 -9 -4 -11 -6 -1 -8 -8 -9 -1 100 is a well-ple of 18; previous 1 grow under 2, or - 7, 100 is a arrian of some interest regarded as a supplier system of molet A. in

not thinks, while as takennis an engreed by the first time places of of ing. 2. Mr. Elin has recently sends use of this system —[Days! focusivy Proceedings, 1975.)

Thoron vi-If a system divide the octave into a count saternic, the total departure of all the n fifths of the creates mr E. V. constoner where a is the order of the system

12 Fac, if I be the departure of one fifth, then, by Th. iv.,

design whence where,

or the departure of a fifths - v constance.

Record 2-The description of \$13 bills of the statem of \$15 is 2

executions: for the description of one 60h or shevalues fore muchous first. As the denseture of our lifth is - A.

This theorem gives use to a continue made of deriving the

Suppose the notes of an E. T. series erranged, on a horizontal line, up the order of a secousion of fifths, and proceeding onwards

and so co.

Lot a regular system of lifths start from c. If they are positive, then at each step the pitch rises farther from E. T. It one only return to a by sharpening on E. T. ante.
Suppose that a is sharpened one E. T. sonitone, so us to

et the first bin 5 570m.

--- second 5 in 17 Office - Gird Aug 30 fills,-

and so on. Thus we obtain the primary positive systems. mer he effected by deprentian of a secritors in 7, 19, 10, ... files we then obtain the primary negotive systems, or by deponings of two sentitoess, by which we get the sevenilery mornive systems. -

The departure of the perfect third is -12686, as we have ness (notices 2); that is to say it falls short of the E. T. then't by this fraction of no E. D. southers. Hence possibly systems. with the co-finary notation of mosts. For if, in such a system. we form a third by taking fone fifths on, we have a third with populary dependent (== 4/), which our approximately represent

- ----

Exacute—In the system of 31 the departure of such fifth $is=\frac{1}{2}$, and that of the stred by four fifths up $is=\frac{1}{2}s=-12981$; and this differs from the departure of the perfect that (s=-23860) only by the studience $\phi(323)$, or considerably the fact in the scale-lendy of a sense.

8 Parmy Surrey

Profiles systems, on the other hand, form their systemately systemately systemately systemately systemately systemately systemately systemated in the systematic sys

Example 1 — Depulse reprises of prefect 10% to Deputs of a parties of the 2.00 deputs on a parties of the 2.00 deputs on a contract of the down per factor a frequency $\omega = 0.00$ to 0.00 $\omega = -100$ d. and the secretar in the fraction of a period third (z - 1000) and the secred third deputs of the prefect of the (z - 1000) and the secretary of the secretary of the (z - 1000) and the secretary of the (z - 1000) and (z - 1000) which is the secretary of the (z - 1000) which is the secretary of the (z - 1000) which is the secretary of the (z - 1000) which is the secretary of (z - 1000) and (z - 1000) which is the secretary of (z - 1000) and (z - 1000) a

ment thing.

Reserve 1 — Sprine of 48. Departure of third by 8 fifths down

— A — 16000

Reserve 3.—Sprine of 100. Departure of third by 4 fifths down

— A — 10000, the error of which is finite more than the

— A — 10000, the error of which is finite more than the

S. Nommon.

Histories register a precision restricts for the system generally called by the same, which has very mostly perfect threats. We shall speak of this system in general as the position speaker of prefect threats. Helpshalts expelyment of this notation is marked by averall positionies, which we need to brew directs; the objection that their notation is marked by averall positionistics, which we need to brew direct; the objection that their notation is smarked.

this includes in married my necessity photometries, which we never to berry discuss; the objection that whe notation in manifolds for uses with measured symbols to sufficient to waterpair and the expending it.

The following notation is here obeyted for positive systems in general; it is not intended to be limited to say one system; these process is the not intended to be limited to say one system; the limited before the contract of the contr

position in a trivial content of the position of the position

and is drawn symmetry to the direction of weight. The mass of survive filts a pain followed with the mast (e^{ij}) and the active coloring series of results tills are severificated with a manked with a structure of the color of the colo

Thus, for energie, the mirror so, while as all no rest.

Thus, for energie, the mirror so, as a los departure of twelve fifth, so we see selated through eight fifth downward from a Hunce in positive systems we so the note which forms on accountmately market their with a

MB—B is to be maded that the position in the series of fittle is determined only by the notificine have introduced; i.e., og the determined only by the notifies have introduced; i.e., og the determined in the series of the series. Regarded as the of the tender B. T. difference of the series. Regarded as belonging in the managed system, og or different benchmarked on the first series which is free fifthe below the numerical or statement.

Bear for Transe is Pearing Sterase.
 We write down one of the series of the notation —

fills down, we have the valu.—

The fars accelerate on the left in any center of the notation form maps: starts to the four notes on the right of the same series. All other notes have their major thirds in the next center before. They does not have been thirds.

11. EMPLOYMENT OF THE NOTATION IS MUSIC

This notation is estable for employment with written under. Its appearance will be generally taken to reduce the employment of a system with perfect or approximately perfect filled, solves acquiring to said to the contrary. The following manager is an expensive.



The internal on this a does among matter to the horsewise or arriand several poly is remained very smeets by the consistenment of the same interval. The decolarment of the countries are of the notation is deferred for the present

The notation is also useful for the discussion of some erators of historical interest. Thus, we have a senie of F in Morecesse, whose work hours the date 1606, with eighteen makes to the ortage. This remarked the following reasoners

Major chards of a-f-10-d. V-12-15 think to the above pay-pit-pp, thinks below o-f-by

he has being thinks to the above.

12-12-14 think to 10-10-10

We have here the two forms of second of the key, g and \q. differing appreximately by a comma. This double form appears in all mind alloweds at analyze with surfact fifths.

A keyboard has been designed and constructed, by manual me he hereald maker the control of the finance. The detailed necessary of this is should in deferred for the several. It contains rights door have in every orders; the instrument of which it forms a part to a harmonegen, and the emitem of tuning is that which divides the octore may fifty-those equal intervals. The from of financing is the same in all lower. Buch recovers so the enangle in around type gives obore one be readily performed seve it.

						.,							
i con	ome								The				e Oxe
12													44
11	- 7					%							- "
10		- 0	- 1								10.		
- 1				10.							- 7		
									40.			-	
- 7		10											- 1
							W.						- 6
- 6													
					4								
- 0										ė.			
2			4.			-				7			
- 1											- 0		
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- 2		- 1		0,									
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- 7		et.											
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- 6												2	
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39	15								٠.				V.
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				*									
									80,0				
T		Mer.											
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- 1								70					
13	٧,												×-
22						7.							
16											w,		
				50,									

18 Pursure or Street, No. Assessed

This principle is employed in the design of the above-neartioned loop-loand, and it is evering to its properties that the fingering is the sense in all lays. It may be thus stand—

sweed ney found, now it is every to its properties time the fispering is the east in all large. It may be that initial—
If we place the if it rates on a homozond has rated—
If we place the if it rates on a homozond has rate of the sold of the sold, and set of the first large slower than the sold of the so

Years of returnd in general case.	Name whee fifths are perfect.	Series of interes
2-68bs eceites	Major tras	Caralin .
Third by 4 of the up. Third by 8 fifthe closes .	thereast or Pythage- reasthird	N.255

The departure of twelve perfect fibbs, or the Pythagerous course, in 12×91686 in 28000. The ordering rooms of (4)) is 281006. For a certain degree of approximation we can anglest the difference between these approximations is quart of a course, without operationing our maximage. In this seem we may cost this had of the above series of internal as thereing on that there provides the experimental order of the provides of the above of the contracting on the closer perfect. We may show our of the provides the experimental order of the contracting on their department of the contracting the experimental programment of the motion of General Theory-

are now of the second second

Again, the notes 6 and Not are making from the otherwise complete scheme; we saffine the number of shords which their sheares distroys.

In the present paper the radianess has been made to present to the members of the Husical Association the more fundamental.

to the meshbors of the Musical Association the more fundamental perfection of the theory of the subject. It is beyond the this trentment may furdation the comprehension of each instruction peculas and such furdate descriptions as may be hereafter brought before the Association.

THE RES. THOMAS HELMORE, M.A. IN THE CITES.

ON A SUGGESTED SUMPLIFICATION OF THE

By Stocay Toyon, Eco. M A. his Follow of Trigity College,

He was of introduction to the many distinctly reaction) perforfirm you! What are the evential recolultes of a rood notation for marical nitch?' I shall then scoutte how for the system to cucilian must embedy. Before submitting to the Association will then be because to built. I shall make a few elegenations on chiest. This will be done with no degree to dispurge the month of these schemes, but swrely in order to above that their success. has not been so complete as to reader further effects numerfluous

from granuation to generation by oral tradition alone. If our inagenage contains no recognised controlers for the German word distinguated member of our Association has carried the gratitude of overe nate and Euclin) presions by endowing as with a new manont record of these hamely and home-recolling stering. Now what is the finture in the notes of one of these simple size which enables as itsteadly to recognize it, whether we hear it whistind let a shocked o'er the les, or ground on a burrel-orgen in a acted of the different accords bessel. Whether these he the deep touce of a maxiv ham, or the righting notes of a shidten troble, of calling for a 'Standard A' torrest first to settle the point, than of as Fitle influences our newer of recognition in the one care. as the fact of our friend's face in the negroe being 10, 11, or 12 ughes long does in the other. It is, then, the relations of gitch constitute its filename to the narrow where it represents. Of course I was here designedly leaving the other elements of melody—time and eleption—out of consideration, as they do not effect our From what has how said above, on imperiors occalision

immediately follows. In representing the conditional notes of a melody by a series of symbols, full effect must be given to the occasionation that the mythal relation of these notes to each other are of parameters importance, while their relations to some stoughtry oppositioned. In other words, a direct exhibition of interests is the first requisits of a good notation. By all means provide cognitive well for absolute stitch, if countils, but not by nabordkasting relative pitch to it. If there is not room to the

The point of departure from which intervals should be reskeed in amplittily determined by the tendency of modern monio is celtibish a direct relationship between each of the notes simplest experiment softens to show the experiences of the connection. These if the notes of a rewrests chard in its funda-

mental position.

are executeraly sounded, what at once strikes the ere is the fact ortage and the first. The intervals they form with and other ticed, rad in order to determine them one ettention must be specially directed to the species. In short, relative to the Jayany other acts possesses no each prerigetive. It follows that the intervals arbitited by a good matation of citch went be puch

ster of the exercise. To obtain a perfectly debute enewer

with each other. The intervals then defined are terroid autocal.

in controllativeties to all others, which are called toward. The position but hid down to no more emission, but an ascertained physical fact, as certain as that water consists of oxygen and ferdrages in the proportion of one values of the former to two of the letter. No person who has adequately studied the evidence will revenue revenue to dispate the connectance of acception on e metter anonestoughly lying within the insushetian. At the some time, many of those whose apoprintance with mosts has been limited to its artistic and notherin side, are paterally of its emportage with an invitality arranges of tess. New that resolute, manife independence of mand which refuses to substit to

Mrs anthority whose evolutions it has not bad the means of adaquetely verifying, is not to be put down by omenler analyzings from men of enonce, but must be satisfied by the production of property whenever the enters of the solvent to head allows fortgastely become that, with record to the courtion of natural and touspered interests, I one appeal to experiments which will come home to the most non-adventile or anti-countile person present. Professor Helmholts had a harmonicus constructed, either natural or tempored intervals. In order to accordain which of the two were selected by a sineer in enrouting a single polody. he accompanied the opening notes on his hermonium, and then mused cleaves. When the woodet sang a third or a nothuntervals where the defects of the system of equal temperatures. on the most considerable—he struck either the corresponding The result Helmholtz strains to have been that in every one for robs was in maken with the nedwal interpal and in discourse with of a violin derives a special interest from the name of the artist on my harmoniara with Herr Joselian. His taplast of the stream

of his violin produced court concidence with the natural q. d. e. e of my instrument. I next asked him to play the scale, and the mounted he reached the third or sixth, I struck the corresponding note on the harmowner. By women of the hests it was easy to secretar that the distanced service sized ashrol, act and conclusive experiences, which shows as the greatest physical * Transeledours, third editors to \$22,624

philosopher and the most extent settet in Europe working philosopher and he and the feether attainment of truth I never

the Source of Assessing and the Art of Masso which it is the

sin of the Association to Seter and, as I bone, its destiny to B would be easy to point out further objects which it to desirable that a notation should secure, and some of those will come wader over notice farther on. For the recent or will restrict our densarie to these two, that 'I shall unliste, in some

the facility to be desired. But when other knys have to be recesented by rt, this is no longer the case. We are then merely Awarted to wide on remove some-on resulting all-of the retornals of the C scale, he certain symbols matired to the corresponding notes of that scale. That is this messary fresh realist playfly; to the C scale are obtained in a fact of independent experience, which, as for as anything contained in the natedice is openered, night agenly well not be true at all. An our

not completely operar. There is nothing on the face of the indication, as resource but still to read all intervals off from the effection is thus introduced into a stry shorts matter. " hat to a different note which has no real claim to their allegiance. This is very case) on if the Acts of existing Performants were

constant in becomes involved that not Votorio but William the the less torse in order by an artificial phenocology to make a description the eigenful relating mer be made to look coupliested. Suppose I take two pieces of wood, and by merely

both stacks shall be measured and their lenoths emvessed in standard feet, inches, and fractioned taches. We will appear that they so done, and that the results owns can five feet one such and three-quarters of an mah, and two feet are unches end arressighths of an inch, respectively. All simplicity is, by this arrangement, collects and rel and the fact that can thek in 21 On a Suggested Stoplishestion of

to communicate—to bried water a heap of interests artification, from which nothing loss than a next in compound drivered of vidges fractions will suffice to meanth it. In order to show that the ultrateation facily represents the procedure recladed in the retablished potebrastians, let use take

an instance or two, almost at random

What, for instance, is the direction courses of by

6-61

-Stothe a minor severalt from middle G, and then a rained from the same note, or a whole hear from its cottent. Steep singer feels at once her difficult the encoul steep appears when this administration of the defined provided who the first that the steep of the

\$ word

The fact that our time-notetian becomes hopelonly conplicated when its relative balls in replaced by an shadate con, eaght to encourage as to expect a yeart simplification from a precisely apposite change offseted to our pitch-notation.

The established societies, it has been even, only substate tests returned as a single key, and this deventages are limited and deventions and emphasize of any test of the extensions of tests. The value of the extension and tests of tests. It is well adapted to the purposes of an internect with north- found tones in the colors, to support, to extension of the ex

of piles within three complexes. Now, to beginn on these latter conditions have do in the infertilities of the bessure is part as we contain have do in the infertilities for the bessure in part as we have been contained to the infertilities of the bessure in the contained and the c

Without Citizene of the defects which have been pointed any extension importance of the effects which have been pointed each the autisticate of these disastence for the most important of these is enabled in the Trainie Stylet notation, of which it propose to give a best description for the sake of these whe may not be acquisited with it.

This whole appearance of staff and notes in disasted by this

The the opposite of that and more is thousand by the contents, and pulsed by the initial bitters of the time-beaution decrease, and pulsed by the initial bitters of the time-beaution decrease, and in obtained by the initial bitters of the content of the content of the content of the beautiful bitters of the batter is before that it, a more that of the content of t

sension of the old torse by the new one. The 'hridge-tone,' constructed on this principle, places the retaining talkish shortened to the helt of the contributes one. Thus is referred to communicate

Interesting the a modulation, the sto symbols reconse there easily, but the noise included by these, being reduced from a difficult sterling-point, are no longer the same that they were before the measure calling, which is all their the time et my disposal.

This measure calling, which is all their the time et my disposal

before the constituent secured.

In all that the time at my disposal allows and by the Deck Solds retained, by the disposal allows and by give of the Deck Solds retained, byt suffices to large the late half of the Deck Solds retained, byt suffices to large the late half of the means. The lithermakeshib it is large to the late of the late of

him)—is therefore suitfied to a harry recognition of the fact that the system with which his mane is standified in free from the two

of the New Schole streets in them of come opportunity of the Schole streets are not an extract posterior. We shall street the same of the streets are not as the street that the street the street that the st

W. H. Oilt is seek to conclude; in a centain of the own the spike, and the state of the conclude of the conclu

found and Mune, pp. 252-216. (Montilles & C.

witch Further, by placing the second fine of his staff cometions to be used for major, the latter for minor scales. The evisitales on which Mr Gill has goes are sheefscal with those of my own system, and I glo lly seknowledge has priority in publisly stating and using them. At the same time I do not think that the modes

persons observious. To mention one or two of these It certainly seems neadestrable, in a system arroy ofly 'designed even introduction to the study of the primary stuff notation, on the manuable De principle," to sail the tonic personnelly down on the bottom Tax of the staff, because when once this association deal of approximent deficulty in readons off intervals from our gardened low or speed, which he will us his enhancement autoblished notation studies againstly have to do. It would be a frequently after a modulation a note of one and the same degree of pitch

change to the retablished notation came to be made. The driftcally of writing masic on this system account to me all but taraperable, and I understand that its author does not contemplate the bonze applied to instrumental musso. For these reasons expect regard has system, ingumous though it is, as a final solution of the problem In propeding to deposibe that to which I have moved been led, I wish to state, explicitly, that while I maintain the principle of tonic relationship embodied in the eyetem to be both recard and complete, I make no such airlin on behalf of the expellente

here proposed for carrying it out. These are more tentative raportition, the naffity or mulfilly of which mathley but solrecount expedituos can determine The five-line staff and the clefs commanly used are retained stoff. This is the operated forture of the system, and must

The seven so called 'natural' kees are provided for by this

For 'sharp' and 'fet' loys—i.e., these whose tenies do not appear in the scale of C major—the form of the wavy curve is modified, loops turned apsends being used for the former, and downwards for the latter.

6.....

undoories the key of PE

6----

that of 10. Binolody

S.

.

E....

sistents the keys of Bb and Og respectively.

Notes standing without says spin of pitch-conditionium perfund to them belong to the engine state of the seigning-key-note, and of are to be read of seconding to their distances from the fine or space occupied by the term surve. Thus the arche of Caniger, By major, and 28 major would be written as factors:—

\$ 1,000 parests from the

Miner tooks interests an distinguished from such as two nearly technicity's modified interests of the super note by a special against (1) prefixed to them. The determining states and 0, in such that is continuely from a written as follows for the keys of 0, 0, and 10 —.

وروريني والالادمية والويين

The signs g and b are acclasively merered for elements, and with this finishmon on their ordinary expect that they only inflames these noise for which flag are naturally and remembrally profited The sign [4] by this currentino readent apprelium, and may be dispersed with objection. If append two chromatic phoses, written in the established nations, with a translation into my



changes at once. The fallowing are instances of such many

5 - C

It has already been ones that, at a modelizant, a side of maniform stateds in a three limit of which will be the caping and at the no-coming funds. If the new relations admits of long supersion by an august nature, if we notice may be those what this interval is, which we have been a supersionable by the hardest state of firms the new tensor curve. We have, of course, only no count it of firms the new tensor curve. It havevre, the interval in openions be means or extremely the hardest state of the new tensor of

Construct Construct

Only one point remains to be explained. We now furnishment with cases in which a change of motion furnishment on charge of point. Then, Og may be replaced by Do, or now over, though the noise to be sensined remains the ensure When angle is charge offered the total body, there is, of course, no real elements of Eq., but only of large notation. To all each or charge "models the" (as in door in the plane" enhanced recolabilities, connecting the charge of the contract of the co

from each other—rin, a change of pilish on the part of the tonic, which shows contributes a multiplicity, and is more change of which shows contributes a submission of the contribute of the stall. It may be supported by the contribute of the stall of the contribute of the is shown in mock a way as to pervent its being mixed that the rein shown in mock a way as to pervent its being mixed to the contribute of the second representative, to show that on a showning or find to its second representative, to the teach of note actions; without fulls in extendibuted, in the the said of note actions; without





The system above described gate rid, by the expedient of the texts-curve, of all \$2 and \$5, save those which indicate notes time. In the established notation every major key et all remote from that shown in the eigentage beings in several \$4, 74, or \$4. the result helps that it is often no easy matter to tell whether a the reigning tenic. The simplification which I advocate removes every such superfluors exploi, and also everse ever the cumbrons ker-signatures. The saving thus effected in the number of signs of pitch-siteration engaged will, of course, vary with the correcution to which the system is sunfect. In some tion is made, it will not, I are persuaded, full short of 50 per cent. first rate a secrete key is accomparied by a corresponding change of sirenature. My redultion secures then advantage at corre stee. namery which most specialize chances of separate would necessarily catail. The key gots starce the performer in the face throughout and polymen him of all responsibility nove that of remembering the invacishic construction of the narroel major

reads. To the singer my system often all the subvertieges of the Teolor Sci-fit, within the preserves for him the pinterial subbillion of pitch and the appetitely of notes over better where their beht method interfeces. It also provides a submissionly continuous individual schedule pitch, which, though not independed in a vanish; it at least convenient for the sake of comparison with the notion of its appearance is interviewed. To the plantet and organise the make attenting derivable from it would be in the removal of superflows symbols, or which I have already dwell. Sidd, I manuch but think that their meaton, though to a less extent than in that of a singer, the final of the major, remov, or obscumits character of a compositive being containing policies being the fine of the sections, and motive of containing policies being the fine of the sections, and motive of

owey months one great as it cocurred, weath asset the intelligent performance of difficult works my system with the established nation, i ploto have a pertus of No. 11 of Spekr's "Less Jodgment," written in both methods. The upper three lines of such including a performance of the lines of the lines.

'Leas' Jodgmens', written in both melhade. The upper three lines of each baselon of any cention the established revene, the lower three the simplified revenue. The pumber of ecclaration, p. p., and is, required by the old system, contained of these in the large eigensters, will be found in this mattern to be 160, while of engage of public confinements arrive to response the same extract in mates.

At the cerolisation of the Paper the thanks of the meeting were maniscensity veids to the Stellay Trylor, and a financian areas, in which the Bay T. Helmore (the Cherreson), Dr. Steiner, Dr. Polin, Dr. Steine, Mr. Cherke E. Stephens, and Mr. Alternoder J. Ellis, tank part. Mr. Stellay Taylor replied.



e Pina-Ne











Hr. Assumes J. Essa, F.B.S., exhibited a Massicular consessar, the revention of Mr. T. W. Suzuken, of E. Lockensi's Concertion Manufactory, 4, Little James Street, Roblerd Row, W. It had five octores and two rows of vibrators altered throughout the five octaves, and on pushing it in, the original pito) was restored. As acrecard when all the stoce ee. By this means the instrument would play in from seven integetion, so-called because the interval of a tone is exactly a make between the major topo and the manor topo. The ponsecurence of this is that every fifth in a geneter of a comme too flet for the coftware since the fifth is con-alarmeth of a common see firs), the major third is precenty in tens (on the ordinery third is a quarter of a common too flat (on the ordinary plane it is eight-elevenths of a comme too fint). The consequence is that the chards are very much from and more agreeable than on the as far as it west. The fraverer remains realisted. The construction can be attlised for recolumns a lastly intend has WILLIAM SPOTTISWOODE, Etc., MA., FRS., LLD., Vice-Pressers, 19 tex Custs.

ON THE APPLICATION OF WIND TO STRING INSTRUMENTS

Br J. Benam-Harmon, Ex-

war women to have been a feeling in all tir

cannon or wind end string in music would afford some strangely beastful result.

The may works themselves suggest many pleasing ideas, and these are, he is great measure, embedded in the string of the

There we have a string excited by a natural daught of six, which is exficient to stir it without numbring those whifour which selfed the week has liftle series of Mollin sounds. But all others that have been made to secure and contactions complet have deel record their secondary with the wave waves.

As we not worth that have been made to sense and couline these counts have derived their erroctions with the very moon that destroyed their freedom, and so this spring beams almost the symbol of what is most boundful and more tracontrollable. It is try fast to the boundful and more tracontrollable, it is try fast to the form of the fast try fast to the form of the fast try fast to the form of the fast try fast to the fast try fast try fast to the fast try fast tr

Many efforts have already been made, and their hatery would furnish material for noisy microwing betteres but there is only one branch of these efforts as which 2 as; is any way qualified to speak, and is is that in which the materials need on a read end a strong propose efforts may be highly described as different tools of concentration or artificial dramatic of wind different tools of concentration or artificial dramatic of wind

span the whole or port of a string; generally the string of an opcol was friended to increase the "this" of the wind, and the flattened periods set even a corresponding able.

Mr. John Frances, our organist at Harrow School, bit spon the engined expedient of using the tongue of a "free-rest" for this purpose, and by consecting its secondly with a vision of the property of the pro

the original expedient of using the forque or the price of the prices; and by consuming its expensity, the result of fluctuations in the fluctuation of the fluctuation of the fluctuation of the fluctuation of the price of the moved could be controlled by "stopping," as in a wide.

For a long time this errors; was seen, and admired, and went.

For a long this this critiq was seen, and admired, and wondened at, but these families with experiments in sound will resultly understand how these are incompatible with the purvale of an important profession, like Mr. Fagura's, and how a war not possible the lam to develope this discovery to its fallow wants. left for exhans, but cally that retirence and discovered of difficulty In speaking before an anoughly of mon who are all my surious in age, and most of whose I regard as my teachers, my only ground.

worthy of your sticution, and may receive the benefit of your counts that age to be above, that it will be well to dougthe its

aution of elections The roof employed is similar to that which replaces the action

herico a doferio vitali. It is set in motion by a descript of air which is concentrated

by passing through a hole corresponding in size to the congrethe director of sir, as a rule, must lead to force the tongre use the savily, and, so the tengen note absort like a pinton,

it encounds to a contain extent - sufficient, in fact, to not as a class. After a certain point the absolutely of the tonges research itself, and havets through the opposing correct of air, which again controls it when its retornatively is rebaseled. Either resours

Bed there are many other conditions necessary to create what is termed 'true suction' on the real, and which are a

creetant source of difficulty to the experimentalist

been frend advisable to set it in a different level, so that both reed and string may be respectively in their best conditions. The connection is effected by a rigid pin starting from the face Used as a 'bow,' the reed contributes new nonthillies, but the pey difficulties.

In an ordinary strong the nature of the how does not, of communication with the property of the property a series of works annied to a service whose condition is constant. will afferd a series of entirely different syraks. The intervals. moreover, on this string will vary with every reed applied Buildes this, there is only a perisin amount of string controllable by a certain string, and if this amount be exceeded, the string either referes to excel or breaks on into acceptate they renderive all control by the finance immoschip.

There is only one thing required to meet all those difficulties.

66 On the Application of Wind to String Justimeests.

and that in the proper robits of string and real. The string of time or point would after thinning for a letters, and thereigh it do not prefer that these reliables in already statemed—in fice, I am gold that so many possibilities are well membrated—or letters in reflicion to show that the robitson may be obtained, and the infinitions which were followed in swinting to obtain it are so information which were followed in swinting to other in the reordering, and there so mode light on the laws of rects and arings, that the appricasant to dry will be delayed confined to

this point.

It is point, the control of the requirement could be brought to bear as the endpoint, and when but in the units could be obtained from a radinarial seri of wind-dolds—and when, in order to gain the summs send both Phierity to every on this anotherising, assembling sacre than this had to be shown. Accordingly, all affects were concentrated upon predicting some sends, which by its morth as

By a distribute one seed and strong mightly profits a magin entitle controlled by sky, as well as selfered as entire controlled by sky, as well as selfered as entire controlled as a self-red as the self-red as a strong of the print, as the self-red as th

and virus it puttern to the concern is scoreman, with the scarce or differency of the root on a book.

Here are spans such notes; you will observe that it intensity they are upon to or protect beat after open-pipe, which I remain with them. As report quality, it is possible to obtain three very assuals, which hafe the report halfors—such as a soluting sense, a pere self here, Ziolan secula, and certain humenic and velocifies some persists or wind and serious.

I show instances of these few considers being penchar to this instrument: the remaining qualities, which recently those already haves, will, I hipe, he seem above, it is employed, and controlled as the will of an expense.

The most term and infrare sometic occur when the string is

The many persons are a second or a second of the read, and as the terrainal segments of the second o

experience is gained to deliberately plus this relation, there is a deaper of loring that smoothness and perfection which Nature time senters when resolving the string.

To dealing with quality, only one segment used be considered.

no mesking with quality, only one regrects need be considered, in, the 'cond-argument,' the others may or may not be present. It is impossible to give only risk that would delice the exact manus of quinking various qualities, but the broad rules are no follow:—

 When the excersions of the prod are small the tone is amonth and liquid, like a fluespine.
 When the enumerious are large the tone is more coloured, like a ryell-gipe.
 The missary of the strong observed depends on the me.

channel power of the vietng arer the soundboard, either by high tension or swaying moless.

4. The intensity of the wed element depends upon the condition of channels, in. which materally reinforce a resid.

tion of chancels, &c. which noternily reinferes a read.

The combinations possible by the application of those four males write-order scales of great versity. But this will be best proved bereafter, to a complete indexesses.

This now only seconcy to pasts on the presided worth, which see likely to come. When instruments having a keybest are exployed, we may conside the principle as compominer the application of strongs to word (x x reef) instruments, thus the application of what is oring instruments.

masses un appristato de franço () princi (e e reed) instrumento, than the spipazione of visibi in elempia guintermento the visibilità della compania della compania più e in instrumento della compania di serio con consiste si regione più e insibilità della compania di serio di serio di serio di serio con e visibilità con di serio, principa a seguntata più in inreprinci a propial misiafonimi et (e. p. pri), visiona in a rettra, ergus et la general cerioleccorcei et a commen sensitari di serio di serio di serio di serio di serio di serio a rettra, ergus et la general cerioleccorcei et a commen sensimento di serio d

medium of the string, as was arginized before.

Bit is medium to point on the economy of uring a sineng natural of a pipe, and the houselful force which a sense of such as the sense of th

state is a few or operations between paging and its fruits that the properties of the schedule of the properties of the schedule of the properties of the schedule of the stretched properties of the properties of the schedule of the stretched properties of the properties of the schedule of the stretched properties of the properties of the schedule of the stretched properties of the properties of the schedule of the stretched properties of the properties of the schedule of the stretched properties of the properties of the schedule of the stretched properties of the properties of the properties of the schedule of the properties of the pr

It will effect a note, when planted, which will not very statistic challengly in those orbinated. It will then very repair, with tensors, here on ordinary strings. This will be the new with a nound acting eagli the educative by exhausted, and then may be preserved by modifying the strings into each or where n will a maximizable between the bridges, by sating a few induction of a tempered and colled atring beyond the heisigen, so as to not us a companion.

As regardin quickness of speech, it is dear that whatever will sende a stating will senior it when satisfact is a real, and as the sende a stating will senior it when satisfact, the personation explains may be of the most explainating description. But it is found by experience that is, this case, as in all others, the proper relation of root and string solves the difficulty, and poverests any

But there is one pittle in which the measure beamsion recposite the granter term, and that in it to pravot of approximaposition beginning to the property of the property of the first of the second with the contraction. See these sections will be seen that the terminal contraction of the second contraction of th

DOTSSION

The Earl of Witton caquired, whether a note produced on Manchine's principle could ensire as instantaneously to the treath as in the occurses open, where the six's always needy to pass through the pipe that gives it. It appeared as though the steing would have to be not in whention first.

Mo. J. B. Blactone registed that the eleptricate was a most reasonable and nutration out, and the zero which he had hoped would be brought inversed then. In weak he was that with the second of the second that the second that we had the reason and this place of the second that the second that the encourage and this place is sufficiently as used in the reason and this, that the order had to receive inself into exsecution them. They can could be four or differently was an extended them. They can could be four or differently was and but reverse on improving the order of the second to the second but there are the second to the second that the second to be second to the second the second to the second like had forced at our time this is spoon of much neight here to Browning the second have to be good over as it is necessary. short which there would be mean difficulties. But there was a simple way of doing it. On the form of the extention deponded he reached tete. this form, artificially. If the street were not by valuation, it had to bendate whether it would divide sholf into the form which it would ultimately savane, or vibrate in life retirete. That was the reason of the delay of the strag in encaring. Artificulty however, that difficulty could be oversome. The note was not at all interfered with he heart torolard be artificially exided. He had not at the end of the room a cost of diagrams of the appropriate which a pay of policianous world present in an organ. It was a full-rise discress of the pedal harp, down to a stateon-feet tone. In ordinary man, where reeds or elsed takes were used, and the action was carried through the little changels which resute the descript some the reads the reeds were not at all now - all that was not being just the cost which the red wafers on the discrem represented. The second electing like on the diserror was a string, which was stricted at across all the nodes, because of course, in a corus of strings like that, all the nades coald entity be brought to form a straight line, and arrows that rodal has there was stratehed an closing street because you there got really a 'hatr's broadth.' But any stiff string get norms at the proper tension, so as to touch the modes of all the strongs, would asswer the purpose. In the first place it acted as a damper, and controlled that point and loop in steady, without reference with the successor of the street w. any war, but rather believer it, and stendring the street. But He most preful function was that it transmitted the vibration. If a ringle note of that series were goods to sound, all the reinforcwould fiv late vibration in a moment. There was exceptions siready controlling the string, and the result was that herp-like sounds that is like one great string, when one note was made to mede of pergussion which was already applied to etrines, and as you did not rely once percusion for the whole sound, it could refused to speak, almost may kind of percussion would set it note. Mr. Haralton believed no difficulty would ultimately

arise from this cause, but thut, on the contrary, there would be admentages from the sympathy of the different strings. The Real of Wiscon asked whether any of these strings were in contrary. Me Hanney replied that they were not. The Earl of Winter soled whether they were all matelies.

The first Zei Mittannia solid student the blast could be Wei Mittannia who will be student the student of anythem of the Mittannia supplies the student was considerably, you would be present or "Sould he is repair until motivately, you would not employ the National American Students of the Sould be blast or employing." A student is sufficient to the blast of the students of the Sould be blast of the Sould be sould be blast of the Sould be so

Dr. Visigious asked whether the creds were tained in maison with the strang. Mr. Hongrow replied—No; shot was done almost in the dark. If was done quite congravity, because it was expossible to derive a massen beforebeed. The patch of the word and of the strang

The Common felt runs that he had been undergated in groung a wise of the basics to Mr. Benderike for this recept organic commontation, as with as for the disturbations to be been obtained to transich. Notworkstanding the difficulties be but also also which would not cally compay the present this evening, has expense under the extense of mronices and relations of consultant for many a long was to come. Money residence smoking to death, such to the telement of mritten and the surface of the destruction of the surface of the sur

of thesis. Mr. 2. The second whole variety of finishes, nearwing to Mr. 2. The second with particular the second with the seco

fact, the only survey he could give would none later, when he Mr. J. Hrane said he would not ble creation in a concrete form. He belleved Mr. Hamilton was building an instrument on the principles he had lold down, how many stope, to use a common expression, would be propose to have in it? Mr Harmon said that at the present memora he had coulding for at least thirty distract stone.

weakl show the condition weakscent

The Earl of Wincor believed that the difference in swand of a has been and a charinet, and the small among tof harehouse which molficit. Was not that as ? Mr. Haveners: Yes a "heating" read naturally affects a

The Rad of Waynes entrained whether what he called "the

Mr. HAMPER and that here was broughed a very deep question, can which he would not writingly have entered apen, because it vitally effects the mechanical vast. He believed that a reed only sounded to the back-stroke. The outch of a reed, when blown, draft, and there could therefore be no sound, but the sound is reduplicated in the return rection against the dealt. A reed against the draft in the back-egring. But we were not bound to

he ascertained, by measurement or calculation, that the savade reinforced by these loops councided exactly with the fundamental of the general note produced?

On the Application of Wind to String Systematic

Mr. Harrion said at was identical with the frankanestal sound, Mr. S. Tanton: Then was never streaming any of the own-

Mr. S. Tarton: They yet never deregation any of the conv. Mr. Unamore. Along the findamental. It men quit possible for the rectices to take one of themselves. For example, the converted the converted the converted the contract of the cont

has sentence when our or not reco-organis time; therefore be confidenting to have almost any colour he hard predominating without offenerouses.

Professor Edwa; Was it found possible to strengthen the

overteen as well as the fundamental?

Mr. Harmon. It was, because if he weakened the fundamental, that of itself strengthmed the restronce

Mr. J. Drug. P. P. mill bett if he melasteed the house

diagram properly, Mr. Hamilton had cut off the top organical altogether?

Mr. Hamilton , You, for convenience, because one winforcing

segment was found to be sufficient.

Dr. Vennesum wished to understand whether the reeds were exactly in the some form as in an harmonium.

Mr Hanarov Not necessarily.
Dr. Venezum: Were the strings taned in the sums way

Dr. VERESTRE Were the rivings taxed in the same way corresponding with the read?

Mr. Hantitus said it was impossible to deries the review horizontal with cooks and strings. He would share afterwards that same of these high points way profined by quite low, there reads

Dr. Viskannin. The strage did not speak in sympathy with the reeds.

Mr. Hastree: When readined, one part of the string was in

any matrix of wear state of the same part of the same of the cold. See a same of the cold has been seen, and that was the noneality for the cold has been seen, and the cold been some a same of the same same of the same of

that it is thought, a social of the interest returns a regional, packtions of the rest, was contracted to the correct of motion of stock while appearant divided into three humanicous segments, each of which would have the most energy of policies.

He HARLING will that was perfectly true, become, although the amount of which was not in making, put the whole much

the amount of string was not in notices, yet the whole mass of the central segment was in naison with the length represent JOHN HULLSH, Esq., Vice-Peartness, or you Cases

THE PALLACTES OF DR DAYS THRONY OF HARMONY, WITH A BRIEF OUTLINE OF THE

STREETS OF A NEW SYSTEM. By CHARLES EDWARD STREET, Ecq.

Is the present state of scientific knowledge in general, it man appear meomyrehensible, to those who have not pursued it in the gay work having tot a received which has set first even the elemet with general accretance. I am not speaking here of the Henry Baritter, Alexander Hamilton, &c. These, and murrores others, do not weaken to treat of the recondite view of the sublect, but solely to supply the young student with muctical predications of accorded facts. What is still marrier, describe numerous endrangues, is a work which shall conviculants times the materials and combinations of the Harmonist to their tenn materials and confunctions are not arbitrary and conventional. in fact, laying before him all of which, as a Bacmenint, be con-

The carbest serious endeavour to this and was one which, considering the syneral state of priorities western knowledge at the time, reflected the highest honour un its nucles-Hamme. who had printed out the intimate relations between numbers and On arbitrary addition of thereis. It will be found that the addition of thirds in precisely what does become in the constitution of thirds were alongly assessed, not derived; concluses they were macronal and constitute subseed ; and there was no basis for their selection beyond the remunitaries that they were evethee the principle of harmonic progenties, with which such Shoprists elected, was officerarily set at mouth.

date which they imprised to embedy the truth, or all that they dressed measurey thereof. The energy of such writers in Lagran, They all differ in important points in their views of the sulgest, extremes—one of which is nerbase remusered by M. le Sorre Blein, who excludes every consideration which sensed be sonported by acceptical phenomena; and the other by Gottfried Weber, can of the chiefs of the array of telebrary, who, even all and ears that the Bitle we know of truth consists rate in observation of what sounds well or ill to each or such confirm. a fundamental principle, and to temperary them into a plateo-

influence, but within our own time it was reserved for the Danson present within ments to make one more ettempt, which is the chief arbited of my address this entities. The The there is band on the occard semmedias that may note which can be used in consuming with any medicular key round base on absolute taught) to distonto, but elso to chrometic notes. This is, briefly stated, the relong specialists of the theory. It had doubtless struck its author that in music (modern menic expensity), in any distance period in that how. Sends obsorbs went by your familiar meter, chande compared at what is called the mixed fourth of the soult-F sharp; similar chards, with also an E flat; variage choods in which on A flat appears; church known as those of the Evinoma Sirth with an A flat and on Fabous and acceptions Sixth, end some others. These obords comprise, in the agreesale corne tota second to the character scale and The Theevidently felt that the mere sataloguesy of such conditionings so was eligerther constitutioner. As the some time, the transport way in which they are mostly used not amoraise to him to ranfilly the idea that they savelyed ony change of key, he belook himself to distorio posts in the key, where these ekromatic notes and oberfs could, as he thought, be desired, and so be brought within the key. The roots which he coupled for this persons are the tenie, the dominant, and the superticional at E.

G. end D. in the key of C: end superposing third users third.

and moting the records obtaining of the horsecules is the section of the filterance of the obtained by the section of the contraction of the contr

assigned by this as each, as we shall find in due concer.

20. Day these specimeds in shaw the treatment of his several fundamental charles before maned, and this treatment includes curisdire confections as its whole sectional interest, no as not to confirm the speciment in the confirmation of the section of the speciment as some other products of the speciment as some other products of the speciment of the spe

ale, are then strictly in and belonging to the loy.

[Mr. Stephens here situated in the Principles as for as the Chords of the North.

It has absolutes seems on the home of there is no down for, that the encoration symptomic to filters, by constitute closed, lands, from the point, to combination which, by their enforce, or entriply telescent I should be tables; mass obviously in the combination which, by their enforce, or entriply telescent I should be tables; mass obviously on the combination of the com

[Mr. Stephens here Whitestood It's use of the remarkable Chievels about Judies 4,2.]

Ton will thus here found their, formatible as soon of these should be suffery appears on oreside ands, in tenural contract a time suffery appears on open, when contain ands, in sometimes with contain principles, one officialistic from them, they facush, with their less the imministication position, as explanation, assenting to De. Day, of many these which are very constant in mission commodities, and are extendity and eliminated to the contraction of the

On the Rallacius of Dr. Don's Theory of Harmons.

we find that -- elibough presentably only after many auxious references to discover a better path--- Der brought hissashi to which spends not for what they really are, but for our what be arrived in the so-called harmonic minor seventh, from the tense root—the 'ree perfe' of Bamers—the 'bib coles' of theorets to general-seminally B fee. And bern at prov. the head and front of new chicotions will be referreded. The secalled it flat an obtained to not the R flat which is available in position in that coals. It is not a true major third ander D . it us not a certical fifth under the true subdominant; it is not in the ratio of a meany third with the dominant, &c. &c., and it is streets remarkle. I will not become dwell become on this nonrefuse for a warment, and were that when it is read in the loss of C. and not to-effort a modulation into that of F. it oneth, newhors. to be of the lower petch of the homosus minor seventh; so I peak on at once to Dr. Day's next fundamental shord of the severalnot the true subdominant F in the scale, a needed 60h helow C. and it is almaly, blue all the harmonic return savenths, prayedable. This will be doubly abvison in Dr. Dee's constaine fundamental chard of the seventh, namely, that on the experience C. Hore seem of everys, the harmonic accepts (marriedly C) is flatter than the true C of the scale. To L0004 valentions of the former there see 1,000 of the letter; sed so the harmone raison accords on the expertonic, declared by Dr. Day to be whatever and it is indeed to me at least, wateroffens that De-Day was not stored by this startling enought, and thereby convapord that he was properly in error

smooth that the var promothing is error.

Livers care in speak of the most should in addres, an abovined yet and the control of the control o

when at this sillines found of last, they see not an any one case of the spitch which Dr. Day comment them to represent. Up to this page 1 have been expecting of informals which may, in one wors, be termed jointhe—Jorne, which cools, porture, to extend jointhe—Jorne, which cools, porture, the seeman of the page 1 has been as the page 1 has been as the page 1 has been as the page 2 has been as the page 2 has been as the distance of the chernel, in the next sale shade by ID. Day to be in fancinamental orientals, at the mean and set the distance of the chernel, in the next sale shade by ID. Day to be in fancinamental manufactured and the page 2 has the distance of the chernel, as the next sale shade by ID. Day to be in fancinamental manufactured and the page 2 has the distance of the page 2 has the

nightly on of these without mensions detection by my list keenly assurine may led 11 for most to space detection slave of the confect fearth, which, sader the same soft at the distance of the effect fearth, which, sader the same soft at the distance of the death, constituting the destruction of the confect of the dashed, constituting the close of the same, just considered, with that of the streath shock. This deads of the shorted, contrary on all the streath shock. This deads of the shorted, contrary of an distance of the shorted shorted of the same of the streath shock of the streath shock. This deads of the shorted, contrary of an distance of the shorted shorted of the same of the stream of the stream of the shorted shorted of the same of the large shorted shorted same families. Height have teel hereor while the close if an an concelled each shorted short teel flavors while the shorted shorted same families. Height have teel hereor while the close if an an concelled each shorted shorted shorted shorted shorted shorted same consistency and the shorted shorted shorted shorted shorted shorted shorted the shorted sho

so done it as a consent or a climest, but two there, a constant or a clime it as a consent or a clime it is a consent or a clime it is a consent or a clime it is a consent of the clime it is a clime

which is the control to the control

recognishe emittane. With remed to the thirteenths theresolver, I will marely remark that, in all three cases, the many thirteenthe, as derived by Dr. Day, my considerably too flat for the true notes in the scale; and as for the miner thirtoeaths, we find them not till we arrive at the sixth octave of Harmonies.

It will have been found, from these remarks, that every harmonin beyond the third and likks in Dr. Dee's fundamental charge. respect with the coffiers expection of the major winth on the topic. But, further, not culy do those Harmonies so controlled. the free scale, but they necessarily operant haveless and love. conclinable contradictions among themselves. For instance, if the

E, frurth space, treble stave, so deduced from the toric roet, give 1,23) vibrations in a second, the so-colled E, the major thin. fountly from Dr. Day's derainant mot, would be fatter and ever only 1.067 vibrations in the same time : while the expedied R. eberner, and would give 13365; and thus we have no less then three different patches supplied us by Dr. Day's roots in the key, key? Again, the note A, third space, troble stars, as derived by Dr. Dor from his tanks and discensed mode has ASA vibrations are no less than 301, thus expedring us with two pitches for the note A in the key of C, both of which, so it knowen are st

Dr. Dwy's chord of the eleventh on the descimate of which I Importance of these constituent attributes of a key. The tegio and dominant trinds, alone, do not, under all dreamstances, minuse triad or even only the subdominant note added to the Account trial that do so and as I shall recordly endersorthat F, ere rightly termed by the older theories sub-dominant.

New although, is the earlier part of Dr. Day's work, he makes second part of that work, where his own speciality and allows. crusies are more directly set forth, he distinctly tells us that On the Palissies of Ziv. Day's Theory of Economy. 17 the country clored on the subdominant in to be considered as a

the cosmos clored on the redominant fee to be considered as the part of the shelf of the electron of the columnant. I make a part of the shelf of the electron of the columnant is been also as the column of the column of the column of the shelf of the column of the col

absoluted on an if the observation and presents presents in examination, and first grant and the 1-th controlled $^{-1}$. Depresent the 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$. Find the 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$ is dependent to 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$ is dependent to 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$ is dependent to 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$ is dependent to 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$ is dependent to 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$ is dependent to 1-th controlled $^{-1}$. The 1-th controlled $^{-1}$ is dependent to 1-th controlled $^{-1}$ in $^{-1}$

obtains to the travel series to the tendent, it as events of a member of the force this supertunity root, findicately at verticate with the laysman and the series of the

On the Fallacies of Dr. Davis Thomas of Homeson.

the first parameters which appeals to year hard with the close of the contribution of the parameters of the contribution of t

point in type, or our intervalent strong, me now or to a conventor. In one pass on its remark law, in newful quiested to his enducation to increase the everything both thin the cost demands, and the contraction of the contraction of the contraction of the enducation in equal to the states made. In good and the contraction of the contraction of the contraction of the contraction, the contraction of the contraction of the contraction of the whole in a significant entraction the contraction of the contraction, which is a significant entraction that the contraction of the enducation of the state made by obtaining or softening. In a contraction of the state made by obtaining or softening to the contraction of the state made by obtaining or softening. In its description of the state made is the contraction of the contraction of the state of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the contraction of the state of the contraction of the contraction of the contraction of the state of the contraction of the state of the contraction of the contraction of the contraction of the contraction of the

where make leaf of the directly stimules, while the stillows, in the last leaf of the last

of the paylor mode (E. G. and E. in the key of C) on the ground In has own wards, "that if appears to belong to contine day....that if cannot know the tends for the root, as the maper arounds from that root is part of it' (white, as we have seen, Dr. Bay's roots over the socollect remore agreeable are by a mad by propose to above that the various in his system. The girt of all this is, that he interducts the triad on the medical of the major enals, singuly because he monet first, according to his views, a root for it in the ker-see seature. hassened these not conform to his topic rook according to which R fact. This reported trend on the reserve mediant is remarkful to make a cost of further appearance call in a recorner, the ermmetry of which would be destroyed by its absence; but, in (Burfeel teaching that a chard which is out of the Lowin its first from in recorded on in that her when need in the first invertion Something prohibitory is moved to this shord is also advanced by Pitis and other theorists To me it seems pure description That the chord is not much used in true—the same way be said of the discipled trial on the leading-note, of the extreme trial eradability is the only operion for the theoret. Now, Dr. Dov. admits that there are instances in which the best writers (Hamile) reportedly) too ri, but adds that he thinks ' obour with had offert, the shood farring softling schaleser to do with the few. As Hazzlei

from some of the works, to enable you to test Dr. Day's worker.

(Direction from Handle plantial by altered from 20°c John
Stephen Hellerde and Hendelstein, the best-work
Stephen Hellerde and Hendelstein, the best-work
including the Wir Helderd from "distant," which fromittee
maximum of the use of the Chert for question, not only in
the first form, but also in the second innerview.)

These, Mr. Chairman, Ladies and Gentlemen, are a few testances, called at medium, of the --am I to any led?---effect of that about which is published feelinking by Dr. Day.

that stoped when he published behålden by Dr. Day. Shalladd, it has supplished were responsibly used as peach to easily the possibly of may makehalize dratter first encours of a facility to be possibly of may makehalize dratter first receive of a facility to be a facility of the property of the proper

On the Pulleries of the Barls Thomas of Harmons

(Thatration; isolading the Toole Pedal at the opening of Manifelastics Friendforte Concerts in G whore, and the Dimensiol Paids, communing at the 21st lite of the segun part of the sine movement in Basthoon's First Sympleon;

Among and boundern stochholmen to the et a. Schwarz, when the state of the last yet of the last yet of the days with a fine of the state of the stat

than his whole argument fields to the growed. (Diversibles).
Finally, on this band, I will show you that their tensitiest and dailed, by a findersmant above on the submittant of a major scale, can also take piece even on a Tone point or when Dr. Dey takes no regulatory and applied to the submittant of the submitted of the submittant of the submitten of the submittant of the submitted of the submittant of the submitten of the submittant of the submittant of the submittant of the submittant of t

(Ellustrations, resinding the Third Bur of the Allegra of Mount's Ocerture 'Den Giocarrei'; the Toole Pedale in the Ooks of Berthoom's Pransferir Sonale, Op 20, and in the Ooks of Mandalanda's West Mandala of Adalance.

And so, in this matter, Dr. Doy has a gain degreetient, our activatives of the collection of the financian Let find the little of the little of the little operation of faces will resemble that when producing this section. The will resemble that when producing this matter of the little of the lit

These we sake prelotes assume on the Da Nyalview and dependent with the same of the region of the same of the sam

powershy accompany them. The name manifolds might set, "When com limited website you with a charge or Dick Dick "When com in the website you with a charge or Dick Dick or the primariles where the seconds are distributed". Then, it was reason, though the is consumering these order of parsaway, for sequences, with the namelings untertaken content of parsaway, for sequences, with the namelings untertaken contents are not a second of the second of th

and, secondly, according to that of Dr. Der

F P To by T | 1 to T by T | 1 to T

I could indeficiely prelong such tools, but it is recellent and with this selficar appeal to instant constraints, and without one further world of comment, having the weekst to promotess, that out, for the present, my comments on Dr. Day's "Tenory of Harmony."

Law proceed to speak, very brinting of the channels of a new

02 On the Pallacies of Dr. Day's Theory of Hormony.

system, to which a very curvial and lengthened study of the subthe whole gauge of harmony, distente and chromatic, that He speciality concests. I first secures, as a central point, my kaynote only; and then overything is added, by deduction, do , in the directors mustal cut by natural facts, and incomable in one. fermity therewith. Beyond the hexages, I view every note which can in the way I will show, he taken as a root, as a degree of affinity with it-my system thus recembing, in some degree, those to which the name of Ounifodic has been given. From each of my roots I deslines too harmonies of senther more ment were taken. You see all, doubtless, aware of the illimitability of harmonics that only a selection from them one possibly be first burries-the baymonic minor arrenth, shout which I have already said so much, and I adopt only the third and 10h (and, of course, their creares and that of my root). This process, taking my ksymete, C, as a root, gives me E and G. I then first droves of afficiety with Consumply its first barroomy of What then is to be does to increase our progress? Pursue the same states of affinity, but look backward as well as forward; I corrected my low note with its nearest relatives. That note is F. too tree and honest anhiomizant and properly so samed as being our of the graverning powers to connection with the key, and under the lary-note in its true burstonic position; and this P gives me, as its third and titls, A and C. You will thus farther recognise the appropriatences of the otherwise memorator term of enterelies, as applied to the such rate of the unit. As I have shown you, the true subdommant F is, in havengelo nosition, below the tome; and the A thence derived in the midning In my dasgram you will permisse, first, my subdocument pool

In my dispersary on will pursuive, first, my subdoculous to exist the object products. Above, seemed them up theyed districts on the control of the control

linked ingether, as you have seen, by sature, theselowing that that ende is no artifactly inventors or automytics by man, no

suggestion of nature, primary all with conclusion intell.

In contrast, and the supplementary of the contrast of the contrast

My theory then in, that these narious professors them adapted products, standage, in contral degrees of affilty with each other, one he issued in contrassion-seconding, of course, to creat, which is the contrassion-seconding of course, to creat, what is termed distinct in barroop object us. Datasie truth, shadest describe of the seventh, right, deveeth, and thirteesth will here. This, for instance, the distincts devel of in the course of the seventh, right, developed of the second of the seventh of the distinct of the object of the two lines of the seventh of the distinct of the second of the less could trially, and part of that or the deminior. This where it, of course, not replicated by the Object years, as it has a surpr

Enterelling my system further, I nest arrive at my roots in

Including the primary fields of the contract and opposite the second primary from the contract the contract

any derivation: "(Simposium) are Thin by used in fall cognotion of This by used desired in affirity within any leads I and cognotion where the property of th

65 On the Followin of Dr. Doy's Thorn of Harmon,

or the interested of the large lineary of linearing.

will overlook this indicate he occadenation of the seal point at seem, you will fully readen what I made by the natural laws to this, my accord form of the observation scale in consention with C mater. ("Interestation.")

Leatily, for the present, my two A's, two D's, &o., being, as you know, by their derivation, of different pitch, and it being relimensable to brok our arount and establish a crok of level towards here every to my sid. It would be shallow to relate me here, and some me of consequently to Dr. Day in propert of his three life of different point, in not enguesting that tengerement would respon the deflocks in his case also Dr. Day's three E's are derived by kieself from what he sixtue an at exchange with much others. But my two IF's, two A's, An., and derived from roots cely more or less is, affails with my keynote, their origin better a remove therefrom ; and so I cham temperatured to reconcile little family jure between the more distant branches. I then show how, the family feads healed, some of the extreme horoclass was under certain confidence. actionly converge; and we thus not only arrive at the whole able, and localized, such obserie as that at the burisping of Baydo's Chaos, consisting of B. D. A fist, and P sharp; and I also obtain a rariety of combinations and treatments, some of which I have name not mot with in regular compositions and athers that see, to say the least race. (Whatestime)

reserved to the control of the contr

management

The Cauxway, after expressing the thanks of the Association to Mn Stephens for his paper, called on Mr. Elfa to give his promised alastrateus.

On the Editories of Dr. Day's Theory of Harmons.

Mr. Areneven J. Econ. F.B.S., said that his object was to make some of the chords proposed by Dr. Day and the, because it is not wouthly in index of the effects of such anatoms of hermony as that advanced by Dr. Day, which were deposited on peculiar intension, by means of instruments insed, as the manufacts, in somal temperament. He was not able to exhibit all of Dr. Day's choose, but he could show some of the most important. So for as he had hitherto been able to discrete. evolume of harmony, before Dr. Duy's, were of frur kinds: Ordered (formeded on the orders order, as in consideratement) tuce); Oalstol (founded on the octave and fifth, including of

six communication recognized by Greek writers on Mruce, to whom Techan (founded on the ortgon, fifth, and major thard, mainfrag-Gird from a lifth, and the nights as defects of the thirds from an octave, with the extensions of all these intervals, and hence competeing all the consumous generally admitted in modern. many) and finally Scottand fluctuities all testina and sharthe

results of introductar the harmonic or substitut seventh). Mr. Peole, in Selfman's "American Journal of Science and Arts" (Vol. 64, July 1967), describes an organ with 100 paper to the ordere in which 50 of these sentings tonce are retroduced to exhibiting the affects of the scotimal chords employed by Mr. teristic chooks of Dy Day's system. Mn Ellis then preceded, he recent of this instrument, to exhibit the effect of the chief if

E. G. fat Il fin the key of F, being the true fifth below it), I (of the key of F), and showed especially the expensivity of C, R. G. unbfint R. to C. E. G. fint R. to all reservings, and also the experience of E. G. subfat R. & E. G. fat R. in all inversions. Then he showed that G. subflat E. noral D (of the key of C) give a postdar miner shord, not much inderior to the tree miner, whomas G, fat B (of the key of F), and D (of the key of F) with eakfast II, and then howeveries div moves of the above possible cherds, on as to show their officet. Family, Mr. Ellis stated has belief that the adventage to a few chords derived from saving the auptimal touce was not sufficient to compensate for their theoreOn the Pollogies of Dr. Davis Theory of Harmony.

tical difficulties (on which he furbore to entry), and that nothing but noise would reselv from using the humanous elementh, thetorath, and seventeesth, returned to the usual schares, as proposed apparently in Da. Day's system.

The Grammar having stated that it was now time to close the meeting, it was decided to adjourn the discussion 6H fosse which at the next meeting, and to close at at five which; in order that Mr. Hallah's paper might come on at the usual time.

ADJUURNED DESCUSSION.

Moreov, Master I, I

Witness Pose, Esq., Mos. Doc. Ozon, F.B.S., complet the chair.

13. The Term II is, unclear accessing the deduced between the control of the cont

the call masslers the creatures.

There was one part of this report which he did not understand, and thought it was be a maprait, where it said that the only hereseine Mr. Stephene admire one the treatile and the increased Mr. Stephene admire one the treatile and the increased masslers are to a matabase of the reporter, he re-

noder the conviction that it as a mistake of the reporter, he reimined from consects.

As some of the members did not should be know what the

humanic scale was, he thought it desirable that they should hear it : and, the reform, he want to Sir Charles Whosteless, recollecting that is one of his resir lectures, nechans came for your are, he had cubilisted this instrument, on which he produced all the incmonto intervals. At that date harmonium or Reline springs had at the and of the tube. It is very deficient in nower, but still, with restort elemen in the room. On rotes are andible. He was corry to say that the tabe or the motor which works in it was not gate posters, and the sugged was therefore very feeble; but on agriculture the temper of the pre's harp, and then moving the picton up or down the tube, the different intervals are easily disa weekent term outcomb account made from C both in a seconding and in denorating seden.* There is a slide by which it can be adjusted. If it is got at half the irouth of the tube the octors sounds. and in the same were every one of the harmonics in this harmonics scale, taken from his 'History of Maso,' could be obtained. He would say that the numbers profined to the sounds were the meet numbers of vibrations, which are difficult to count. If nor one learns these numbers by heart, he knows the retice of all intervals; on. He would further add that Mr Stephene's own plan ascrood a very arrest and received one. This tribe showed that from the discetty from it, but you can sound no F, no So, and of course no A, because our A is con of tone in the scale; it is tened as a minor tone, when it ought to be a racjur, in sature. Therefore, an far as Mr. Stepheus's paper was concerned, he thought the system. he removed was welforde test in avenue. He still not welfors to

the profiled whe presence pass as the state of the pass of the pas

* The learnessest amplicyed was a table-bile post of an oppon-pipe, of object too Deviding, Stade with a point, and having a previously, based to a Said lab does good and of the late. From the case a, compared used a Said-and that produced was good and an activities of the point of the said of

On the Pallenius of Dr. Day's Theory of Harmany.

Mr. Asserters Form Basser, P.B.S., and Am with regards to De Party - Nature, De and strengther of the attenting to the Party - Nature De and strengther of the Am strengther of the American Strength of the American Strengt

name particular transfers. When he said that no meriod booth should of the 11th, were not existent in nature, then refuse was taken immediately in the sesertion that we might to adopt the F tettree gives us, not the F we require as our subdomisent F. Mr. 27ha's asymption that these showls should be tried trued yes stress enggresson than these shocks about he tried timed according to blues entered principles, market by he related before the Association on some possesser, when they would be able to indee of the offeet for thomselves. He felt that we meet have a figite system in system and therefore we much discord those interests which would with nearly years other. The homeonic release accountly as Mr. Ellis absorped on the hart common would those us, shords in which it is concurred were county ladeous. They stro us a major third which is crediberable beroud a major third; in fact, they wer so with surmanical system generally that they must be dissurded. When he undescreed to pix an afterest of Dr. Day's graters to the circumstance of there being calce note of the scale, that is, the many third, he realised. Tee it is true, but if veices were not vitisted by practistize so on our firstled anatom, we should perform those chards tenty, and should feel them in tono. They would sing one putch to E, i

our limited system, we should perfect these cheels telly, and should led them in terms. "They would may see a past, is R, if you spoke of the Trivial smother prob if you indeed of the December, childly in the doce to be major indicated such calcular pixels, again, if you took the Superturie as the root. If was, there, the state of the cheek with the probability of the cheek that they would shough the pixel of a root in Securities. While the state of the cheek with which it is accompanied. Mee James Ballon, Mars Bee Oron, with that there was a rull

difficulty connected with the subject which had not been met, or

is any way alladed to. Any theory of harmony might be said to The absortions Mr. Stordard had work to Dr. Davis theory had raceies are not identical with the counds the principal envisors. But Mr. Stephena's theory of adjacent triads around to be open to precisely the same objection. He (Mr. Higgs) ventured to in their winds, and that they have always written in coral temperatured. If that he so the thirds and fittle, upon which Mr. Speckeus's evetem is funnded, deviate from the neartical manician's notes mat se do Dr. Den's hudser hormouses. He thought it easy to show that composes have always written in equal temperatures, for on any other supposition—if we take any the key of the deminant, he will are notes so the harmonics of the original experience, which either are not identical with the notes of the original scale, or are not in time in the new key. Ent he (Mr. Higgs) declined to believe that Hayrin intended different merels for the A and C according to whether these or the Elib and eventh of the experience on the dominant of the new key. He knew it was sometimes asserted that stringerieron Aid make there distinctions. He was not a strong-pulyer, and was conrected not competent to speak in any Scorences, which is in Cg minor. Now, he considered it was never intended by Raythoren that the award should waver up on Aven. Practical manifolians would say one thing, and readermaticians would not saother, but he believed likeliheren intended that the same sound abould be produced. What is wested of a system of hormony is to deal with the topes that successes a system of hormony is to deal with the toges that composers are and such a system ha believed Dr. Davie to be. He half Macharres on changeadly alledes to in more places than one, fally emblined the whole prystery -- a power which he chine for the our of being able to hear, not the sound setually sounded, but the alose, could the thirds and fifthe derived from the affacest return be reconciled with the notes that practical constitues have erry sand; and he such a means to believed all the discrepances. of De Day's theory much be simply ambined. He by no means

50 On the Pollacies of Dr. Day's Theory of Harmony,

a spring of humoury of the highest practical value to maicians. He believed the coverable pract to be 6th; that composers the delays white the requirements, and that possible the pend indraments were best calculated to interpret their compositions. Much of the set of married composition consisted in the analogisty of a note—indice a note on belonging to one key, and having it in belonging to mother and the noted to give the final contracts.

portify the absolutes to technical and the sized only to distillate. Mr. Cartain S. Barraren repelled that K., noon Higgs-inmonth gridered in the very good proprious of empression,
which is the size of the si

The state of the s

and therein of Lemmay broaded and pathoda in Bernary was lighter. The water of this studie gives an adopt of the posting out what he censilies it is good and had point of each, and the studies of the studies of the studies of each, spitzed and harmony white read on mischaeless strengthous, we are variety in predictal emissioners, and they are absynched insightcours in explain a reliable or mischaeless of the studies of t

in one arriance. Water was a man who although a great theough concerned that, in treatmen bureauty, we should view it as a precional light, and the wroter of this article gives this sentence on the sear and substance of Weber's doctrine; "Weber only sucky to make the next accommend with the chools that one used in source, and does not attempt to explain them, or give their described. Then be exceed a long account of Helmholte's views. not his accountral theory, but his remarks on Harmony, purpleally considered, which had not yet been published in Eowigand. However, Helmholta, although in doesn great deal to deduce abundantal harmonic progressions by theoretical rule, appears by no menos confident of the enficiency of the explanation, and he is a man to be able to do it. He mays—engine from Otto Thierrob. "The system of scales and modes, and all the network of harmour freeded thereto, do not seven to rest on new interestable laws of nature. They are for to netherical prescribes thus of constantly religion to change, according to the pregnative ferelepants of knowledge and taste? That, of course, is the same thing as suring that no A priori theory of hermony can be constructed which is sufficient, betters, if hormour depends cely on outlettes and tasts, it camest depend on physical natural laws. Then again he says: 'Helabolit is quite aware that new elevical and obvanience references will not suffer for the explanation and derivation of manual role. There was no time new to go into the exhicit at leasth, but it was remarkable what a member of theories had been made, and also what immore acetrodictions they femiled with each other. No better features of this could be brought forward than

that you happened with proposing of propies will have settle of the collection of a street of the collection of the coll

On the Fallenies of Dr. Day's Theory of Bormons. certain things fone by eminent men, and the most rectal serves explained. He did not think that we see, at the western, shie to ear, as some elaborate enterns 60, that becomes of pertain laws of neture, such and such brings are right, and such and such things are wrong. To seasof that there are less which shell regulate what kind of reminal composition is small and what kind of remaind economities in had, was, he thought, roing on the old rules were agent by later views of componers, which were testably coincided to by the bearen. To form rules which would be set saids by averefines, and at hat totally entrurted as music advanced, seemed like bestasing at the wrone and. There was more than one enclary for this view. Take the one of innguings. If surbody were to not to work to show why, on particular forms it would be very forlish and inconsistant but that does not do a very with the processity for gracume. We find we tell perge that such and such though are right, being sametioned by the best authorstice. Again, take betany. If anybedn

were to my that, in the nature of things, a plant should grow of a does not set rid of the property for the plantification of botation facts, which mer be leid before the student, in order to fareign su easy method of giving him knowledge. Following cen that to the heaven-and so lone as they lay down rules of that kind as examples for the sindest to follow, they will be good, and will be recontroversible, because they do not treet on thin firhables, second. But he could not halv thinking that to ondense greats. But he could not keep taking that to go denser and to atterest to create all recain and all the inferior complessions of region) corresponding, were theoretical physics. which to not call transcountry but university, and calculated to lead the student into the expendion that he is to set upon waknown mathemetical views, instead of what he neght to be Mr. CHARLES E. STUDENT remarked that what the Chairman had said short the observence of the practice of the old mastern was of corres most important and redisines, but he prelatated. that the facts of increases are supplied by Nature horself, and he principle. Nature might have chosen that two notes of different On the Publishe of Dr. Deg's Theory of Hermony. 23 girls doubt serve to consensus with such claim; both in basis and the published of the published of the published of the shall be conceased, and consequently it is insustreered that the Nature bound has given you is laist the foundation for benoney. On one or with second week or activity and the view that teachers of one tot capital to bine, because it is that data to make become of our tot capital to bine, because it is that data to make become the mattern of the probles of casious, in order that they

Do. WHATAM POLE PRR. Or top Crass

ON MUSICAL NOMENGLATURE

Ry Josep House, Esq.

I respon in this address to deal with certain meson or terms and spithets in one among English musicuse. Many of those it is cortain have confirmed the Pleas or thoses for which they once stood; others now represent to all of us ideas and things different from those they more represented. The time seems to have arrived when we should come to an understanding as to our unsted nonenclature. It will not I think, be found necessary to make any addition to it, at any main, I have more to recently to these any nontrion to it, at any main, van to consider and, if possible, to decide, which cut of recover pames or terms representing, and extitute qualifying the same thing, it is desirable to adopt or recommend for adoption. and to expression. I will deal with its application to these department. Other can meet or time, set no tree country the cera ne sce-brere, semigrere, minim, cretabet, graver, semiquarer, and demisensymer. Of these games, the first those have altogether lost their eignificance; the fearth is no leagur executivity the \$60 with and severth an arbitrary. The locate is no larger abort, but researchy long, the minim to not now the least or shortest pate, but not unfercuently the president or lengest; the crotchet has new no crotch or hook; and the course and its fractions reight just as well be called the 'shiver,' the 'half. alliver," and the "quarter shirer," or by any other merapeus factuable or investive. The Germen call there notes, leginning flow our possiberry, the whole rate, the half note, the courter note and an on. These appelledone, so for an they exceed the persection of the first note named to those which follow % are convenient. they do not show, without further calculation, any intermediate respections. They show at once that sucht assume areal one arreducer, but not at once that four owners could are miche. But I have a much more serious observe to home assissa there. They assume what, if not always false, is, as it seeing to me, not always true that the sombrow is, or that now form of note our he absolutely a whole note. What is or what should be regarded to divided rate a phrase. Pyrhaus, however, a better definition. would be, any note, divided or andivided, which would till either an entire money, or require so many beats as would make one. This would also up wentfoully formulalments to the fifth of whole This would gove us, practically, four-carciance to the first of whom the excellence the excessor whole note of one ewe time, the maxim, and even the cretchet. For thet movements innumentable of fear times or bosts as a measure, each of which is a quarter,

sout, I seed not say, nor that the measure even of four semiconvers has been noncommitteened in a centure that a pressed by on different forms the matter, the loss, the lawrethe semiliarve, the minim, and the symbolst. Perhaps some maximum of the fators may think Proper to agrees such a note by a quever. Let us now consider the names said by the French, a people powerstay to high perfection the nower of clear amountion of what they thereaders are charty. As sonal they leave or threw on one side whatever they record as aneerten or

them. And what are there, in respect to the forms which expects and according that they are different forman that can in an areal or rively, that another is a circle with a store, and souther a director soct, also with a stem; and that all other notes are opened, and have not sale stone, but books varying in manber, German namenolatore, which, though mixed on a false barin in consistent, to our news, which it inconcretes as well as false. But so much, it does what it pretends to do perfectly. On the pitch names of notes-A, R, De, Re, or what not-I do not propose to arealy to-day. Perhaps on some folious occasion you will allow ma to before some conditionalisms about them before way. I read on at once to another matter relating to the arread division of par enhiect, taxo-the nomenclature not of sounds, but of the reletion between form—the nonconsisters of marinel intervals, narroot. I believe that the seconds and thirds and their recengives the severile and girths fraud in the excelled 'entered' reals, and all scales usedo blos it, are very recognity called among as major and musor; and that our of the fearths, and there inver-sions, the tible, are as generally salled perfect. How, however, recordingal 60th relates each in as many affects as a principal

feally run down by the detective police. To the acceptional

Service-studies, assertings to the cold features, thinkles relative best feat all the service of the service of the service sharp reprint to the principle, and expensed to the service sharp reprint to the service of the service of the service services. Other services possibly the shade to this to "to the services of the service-studies, the service of the service such as the service-studies, the service of the services of the services, the semperature of the services of the services, the semperature of the services of the service of the services, the semperature of the service continues for another size of these, each of the service continues for another size of these services of the service of the service of the services of the service of the service of the services of the services of the service of the services of the services services the services of the servic

executional fifth. If the last reterral is to be called false, the irreration (the tritona) should be called true. Only one of these entitle to soom to me entite mediactionable—imperfeet, as spelled to the countries of the Ac on externe to the There lead ward the crafted researched, which has been sure becars afrested I objected that now to the cufflets narroweted and dissiplified on applied to these particular intervals, the exceedingal fourth and (2) I think there should be reserved explaintly for chooseding intervals. I know, of course, that my obsection involves a princaple, or reduce begs a question,....What is a obsonance interest? This session as often imports, thrown as back on another, with Dr. Crotch, to be a scale contaming more than two sensatones. The se-called 'neture)' scale, and all other scales made like it, is not a chromotic scale, neither not now of the ancional in a different order. Of these but the "natural" raincy scale is one, and thought one firether to the modern resticion. Only mied to modern tonsity, which, obeys all things, demands as the by an alteration or negretarylantics, which at once before it natural, C sharp, and A we find three profuges, and one interval erester than a tone. Moreover, he skine from one note to greater than a new. Accrever, by such man one are another of a senio so constituted, we get three other intervals allow to the valued ands -- the inventor of the allowed second shera, and its investigat. These intervals are, I conceive, eacmentations or denimitions of intervals which would have remained unaltered but for the artificial process seeded to recounis the minor ker with modern tamelity; they are therefore, I believe

generally called sugmented and dimentated accordingly. So all

formed by notes one or both of which are foreign to the lay to of these that are natural to it. Without chance of low we conappeared certain of the arrange, avends, fifthe and arths and district outsin of the octaves, security, frurths, and thirds miner, we find no examples of any one of those interests: there ere residently the mosts of extrincial recomment. But with the groundless! South and 40th the reso is skouther Affirms. They are not the results of artificial devaluant over feel there ready to car hands; and they are as much constituent parts of the code in which we lied them, so is the semators between the third and of C, he expected, or H.-F discovered? Of what are they -B? Are B flat or F sharp constituents of the scale-I do not not the key-of C? If they are, our wedges together must be reconstructed de feed as comble, and every neals comble be offered three documents instead of eno. Agrica, we find that the intervals of the natural until which hear regressivities discipation the availant. Of the seconds we can answert only the major, of the thirds we say district selv the major. Can we approved the unique, the largest fourth in the scale, or dresmak its inversion, the smallest \$5th? Both have reached their much the inversion, the smallest fifth? Both have reached their stands have and more and defined attenues to set their fasther. they are afterned a new region and disciplished. I make a reion, what was ther original condition? The tritone and its laversians use. I proest, constituents of the distorte scale; and they are discorte intervals accordingly. For the latter an orithst, imperfect, is should breely accepted. I submit to you, in the absence of a

to which, mean acroid host been to not a marked lattice is now speed in a statistical ground existing eight medium. Evelops the north is statistically control desirie eight eight medium. Evelops the north has enabliquement of the word "love" to request the things or meaning with the state of the state o

exercises, or the nexts nounds ventiling from spontaneous relations, and disturbance, messing press measure messing from the conductation of where. Notes of on how constantly for the conductation of which the next of the conductation of the condu

especially, we often hear of as a great "tone poet." I should say that if this terreindary is to be accorded at all it should be procontemporaries should be extherised to call J. S. Beeb en 'engwanted twen root," and, a sourcess, Rossini & "scentrus port." What designation should be applied to the most crowd of less or manifestator of which disturbs the minds of these who still experimely decote themselves to the search effer that 'philosopher's stone' of our art-perfect intenstion. I pass on new to months and some indicative of more retorate, and stelle. A erroring disputition has been observable of late awarer the vehicles for these indications. I think this is to be regretted-(I) as excouranced to freegues smoog when their mane is likely any severant engines Guerran reaster, he must not easy be a musicion, but a linewist; that he should not merely be able to appropriate the capacital sound of the notes in the score before him. but here also a vecabulary-practically unlimited-of German

designated "Through," when is the contents of their word; I as the state of the content of the content of the content of the chapter for personal residual while a written "I content of the chapter of the foreign metal of the first is any content." Mother than the content of the content of the content of the content words the variety of the content of the content of the barder upon the said, it like factor off, "Said Folder," with harder upon these, and, it like factor off, "Said Folder," with the Said-Barder, "An expense both values in little factor of which is there in place of the content of the content of the which is the content of the content of the content of the which is the content of the content of the content of the which is the content of the content of the content of the which is the content of the content of the content of the which is the content of the content of the content of the which is the content of the content of the content of the which is the content of the other barriers are the content of the conte

moned with changes like turner whethers! I take already used 1-15 ent-rain, 'avec irente'; but these tany be regarded as 'etags directions, addressed to, and investable ratelliaritie to these who are to play the parte as well as to sing the angels to which they cefor. Otherwise French composers limit themselves in their scores to a few native words-such as "detachie," "department," and the like. As for ourselves, our modern musical publication would refresh what sertainly is the means of tree, that we are the eventest linewests on earth. It is confuse to account exemples. of what everybody a furnish with , we have all own, and ove delly, title-come, for metanos, in which two, three, and even four inequages are employed. (2) Irrespective of its notes. inconvenience, which I do not wish to overcute, this practice takes from maste the neglect characteristic—its cuttoficing. We manifold are not able to discovery in a horsener, teaching to the face of the globe; and we are furnished with an algebraic in which to write this hagenge, which is not the invention of a single mind, but of a florested minds , a thing which has mareled on to its present perfection pure power builds music much; an alreaded so clearante him who knows how to wad stantist a mealed composition, no matter of what intronce, composed, lat as my, at Moscow can, without any serious violations of the intentions of its nather, and without his personal assistance, be New York, or McDrowns, wherever there are artists to intersect

to prevent the coupling is a settlemia, posterial, or we see a settlemine process of the controlled on the procession of the controlled on the controlled on

"The same arts that did prints

greated that she has not hold her own against such competitions as Generacy during the hast handed years has hought size to the field—nee we to love all venezables for the project when the slightest exqualations with most handed bistory will show to have been ease the mariod tensions of all the vector? Are were being competitions with we have some the cause the field to be seen to be supported by the competition of the project of the pro

botter of, end, it may be, where than he? Not, however, to three care sestment round this matter than it will been it does seem unwise to subject ourselves to the inconveniences of which I have endown when they our he avoided by the countries precess of their way our remaining, now on. of least partially familiar.

in returning a vete of thuries to Mr. Hudden for his valuable

Mr. Bexwitz expressed his entire concurrence in the remarks. indeed, embedfed them in a book. He referred more expectable to the appropriature of the interval so community called the recovered or experience fourth, and its inversion, the fourcalled) dissincted fifth. He had said over and over again to his rands, that the fourth in question was not an engueratelize, nor the fifth a directories, hence on Mr. Hafish basered on internal consistent most of the finteen wale. He had always taken the same view of the chromatic scale, and had therefore said that the aftered miner scale, with the ressed screeth and the municid stath, was as longer purely disting, and had reade that a reneral of the firm with the altered with and savurth to assertions to be taken as appropriations or distinctions of the larger and smaller distants intervals respectively, and had therefore contracker distance intervals respectively, and had therefore con-

Sir Jose Goes oppfound to home one 'of the neware' or this metter, heman, in a little book which he had makinhad a great professors stated of smeeding their nonendature. He had met Mr. Hullah on Saturday and tailed own some of these matters. He concurred in a great deal of what he had been precased to hear that effermous and believed there was very little to be said against %. But in former days, when he fast terms 'original share' and 'entrone dat'. He ald master a very well-known marries of his day. Thomas Attends formerly courses of St. Peal's, called what we call the 'more there' a "skary third, even if it were composed of two flats, such as the and the. He would call a minor third a "set third," although it were composed of Fe and A, or of the and B. He had sevent manuscrapts in the hardwriting of Means, who wrote out the

meternis for Attweed. The third has been of the engenthese second, manufing what we now generally stall the conjunction second.

Mr. Hettaat saled in what lenguage these lists of interests were wraters by Manut?

Bir Jins (iven explot they were in Italian "Superflowe"

Bit Janz Gree cephol they were in Helson. "Superflower, and "Surveyded" were the terms Messer to coll. These tenne bed been Eleving combineasily. For instance, in the first edition of his book on "Hermony," where Dr. Couch had called an internal collection of the data or independent to his order of the bed of the collection of disabletted. In the last the bed of the collection of disabletted in the set of the data of the collection of the collection of the collection.

Do. There was all fa search to the death, or the specified work of the specified was the specified with a specified was a place of a productive control on the specified was the specified with the specified was the specified w

habe sell to sees with difficulties.

W. Sermitten blass in that they empt all to be very much indicated to the Reliable for saling interface to the "seafment of produced to the Reliable for all the seafment of the seafmen

88 On Marioni Numerolohem.
Sounta, it says at the commencement, "Sl dave monare trotto quado pezzo delibritissimamente e arme medini,"

It was coicleaffy uphicited in that shape, but rabecount editions very aposenty not it in a shorter form, so that those who were not familiar with the Italian language might be able to understand it. He thought the use of our language for musical only on trile more, but even on the music itself. The other der be becomed to take my a piece in which he frend " shore that note meaning that the first note in the bar was to be played loudly. Surely the letters of would have sufficed! A fittle further on of a German, he would have been unable to understand it. The partitable result of a composer preserving his nationality, not to make hisself unlessfligtble. With regard to the question of the to more agreed unitaring the. With regard to the question of the on horse to the very old practice of talking of the counter thind and leaver fived, and that for the lettreet intervals of a kind some cuithet might be derived better than experience, which aggerry to him to be a very bad one. Sir Jahn Gone had sale that is the early offline of his work he want the crithet ' column not be over to some shight obsection in some direction or other.

Mr. State, BA , P.E.S., desired to my a word or two with reof Helmhalts. He had to deal with rather more recovered totorvels then those which occur in the only stell of mosts to which Mr. Hallah referred—tempered morie, and especially equally-tempored maste. It was necessary, for the purpose of Helmhalin, to deal with intervals which acres in what formers! 'institutionality '__the material angle of Mr. Hallah. It was neven That was all very well, but it was necessary to distinguish two kinds of fifths, broides the jest fifth, From D to A in the natural wale was no were a fifth, really, then from B to F, and when played interval. The first instrument which he remained as he had mendioned at the last meeting, was a symptopism. As it was first taxed of was taxed according to that eviden, and the D to A could be puzzle birm, because it was each a horrible tone. Now these interes which are less than another interval by a comma, were swater by the reefs "high" became he had need "lash

and "low" generally for "engeneration" and "dimension" by a cornes. He had speken of Sigh A (which is a perfect fifth above he had had to fully of Jon A which process not an readily with this scale - but low D he had frequently to refer to because it. accoved in the subdeminant key of C. and did not eccar in C itself, and, in fact, led to so appears number of defication in playing sarthing in gost intension. With regard to the use of manuscript' and "chambridged" and an fasts, he did not feel Namself at 1 horizon beyond common coatom, and he had accordings rand the word "exercises," sometimes "mannested," samplines. "sofress," and so on, without any particular attempt at evsternatestion. He was not writing a book on the spiret, and hed only to introduce as much difference as the nature of his subject. consulted him to do. He wished to any that this bride terms. walton he had represented ("dish" and "low") was represented for the recross of reabling him to express himself, which he could not have done otherwise. With regard to enother word whech Mr. Halish mentioned, the word "toos," he was of course very careb pearled, as of course all persons who translate German books are. liables, and when it dissifted sauther was always in common letters. He found that here was not only an ambiguous wordthat is to see it was not call a word which sometimes signified en interval, and constitues did not had the words round third. 643, and an firsth, were collinal worshops; and he found in to be of removators to distinction these when they straight intervals. Ocen the same numbers when they did not. He had therefore, throughout the translation, and the arrangement of when it against a raterral, was written with a reputal ferror, and Second when it simplified an internal had a marked letter. That is only a kind of wis alloy but he did not feel houself at all institled. ta tains the word sound for tone. Tone temed in Helmholts as a moriosi tone, and a married tone in a popular kind of sound The Citationar colord if the original word was not "king "?

the contract of the contract o

tions in a bad English alteration of a Gorean abbreviation. The German word in Oberton, which to abbreviated from Oberthellton. it marks the distinction between Thrilles and Oberficilitypartial tone and apper partial tree. Those are the strictly Routish wonty which he had said throughout the best. The had distant which is their taxes for our major third, which some cieted strictly of two of their types, the interval between the eighth and sinch, which was therefore different to our major third we can embre. for although our equally-tempered major third avernation it it is fatter by a 4 of a corres. There was therefore, rather as elelection to the word tribue in madern nor (although he had used the word), because the three tones of which it consists are not of the same size. There are two money and one miner tones, and that has to be considered. Those are the difficulties which occur when one occurs to thesectical expectetous of tensio. Mr. Hullah is organical, of course, entirely with the practical rate of it, and he nexts arrend with recover great advantage if we had a word for tope when it excepted a modes! send, and seether when it signified an interest between is not at all well understood by persons who hear it. They do aware that they are dealing really with insurations according to a very curious base—samely, that so which the locarithm of 2

The Characters, referring to Me Hallah's objection to the word hose pool — which of ocures was movely a translation of Nodesire-maked when was the ouighness of the word of the first supplied that the word 'tone' was Greek. He control use in Orion was for an interval; the word hans is the

(a) "On the sames". As to the cost of the links largeage for fix, a region would get some be and only allow gave be some of these many distributions and the same of the s

such littles yet should begin to them, or whether yet was to make their lenser. In these bargers, we the sense time that have been the stress that the most time the many time the stress of the lense of the stress of

shoody made up his mind, and did not like to namely it. My Hystan said it would take a great deal more time than but one of the last remorbs made by his friend Mr. Ellis he would rook to first. He had spores of 'all these alterations' Now he appealed to the meeting whother he had prepared one alternation. He had prepared the adoption of one suffect which he had easy for the but 35 years the suither ' absention,' as account to the encounters, fourth, but there was was Portuge, after all, he should be expendent Mr. Ella's meaning more definitely if he were to say 'selection' instant of "adjustice," as applied to the words he had proposed, and he really believed east, selection to be probably feasible. He was afreight not to be spoken of in a certain way be did not one. The note G was a fact, as we all brown it is the 50h of C and the Seat of G, and the major third of Et, and the seconth of At, and a of moneyity we should have two different ways of narrows the

have also to follow Dr. Steiner's menetrap. Dr. Steiners would be given by a showed to explain what it was a first the seaso to have used. Mr. Hittlin's observation that expected to the mean of the mean of the seaso of the season of the se

sh's own showing, it enght to have another name, because it is of a different paltre Mr. Hongan mid his snewer to that would be very sixuals. The tribes was, so to speak, the sent of modern togality, and no perfect form could be caloged and no rollow inserted without perfect form could be enlarged and to relies inserted without workships. If instead of C.F. was had C.F. share, was more no becarries the bursel C. but in the low of G. If in the law of D. yes made the G shore, you write no longer in the law of D but is A. either pajor or mirror. The emerger characteristic of the

perfect interests was that they could not be altered without engaing calling their series and atherwise. That was a soiet year which

From C to E was in the key of C -- so was from C to E fiat, only lot you sould not after a perfect interval without modulation. There was only our planerfect fronth (as he should call it) in every scale, and the presence of that planerfect frenth showed at once what coals we were in. What key is G C in? Nobed ner sav. What key is GCF in? In D. What key is Go-C in? In Dr. The introduction of the billions of the recognition moment outy. That was his view of the matter, and if it were a inst one, the distinctive between mater and miner, and between

perfect and asserting—call it what you like—was absolutely recounty. With regard to the rawes to which Mr Ellis had of which he foured it must be said (though he wally did not want to ser southing offensive) that it had no precioul bearing on musical art. The laws of according might have done somethese for the elepature and tening of season instruments, but, so far so the science of harmony was concerned, we should. where one on better without they with its sanistance. The theory of larencey, as has been said before to day, had here drawn from the practice of great mostmas. Why were populate entire fifths ferhildes? Ecouse to a cultivated our than effect aring on reactical menio. He did not believe that Monart on Berthoven, or even Mendelesohn, with all his great accomplishments, would even have known which by many were maken town and which were wince. To the manual composer they are amortically necessistent....he has to do with some terrasmount Mr. Hullah confessed to being one of those recesses who it wished he from deferency of ear, was able to not no with a manufacte from a first-rate maker, turned out from the hands of a firstrate tuper. And he found that with such a pisnoforte, Josephin,

for instance (who is said to play in perfect tupe) was able to teke part in one of Beetheven's Senatas. He wanted to know, if Josephin played in perfect tame, and, if the paraeforce with which he rived was alterative out of tone, how it was that the two went together as richestfully. He shought throules, that with next segment so congruency. He enough, exercises, and were

as this to some on an entirely different set for peaced use

practical posicions, and over as theoretical posicions, had positing to do. There had to deal with the facts before there, and those facts are the intervale found in a tempered scale. With reward might solds everything among themselves, and make known their conclusions, which would have great wright. The greetien was how such actilement was to be arrived at. It could not be arrived at through discussions carried on as their usual disresident of recognity many. But he thought that if a subconceditor were to be formed by the Association, for the consideration of the matter before them, it much come to some probably before the ced of the scarce. So for so he was concerned he would ofce on every name he had been to the babit.

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ALEXANDER JOHN ELLIS, Esq., P.R.S., F.S.A., IN THE COLOR

ON THE PRINCIPLES OF MUSICAL NOTATION.

By their Stories, Phys. Nov. Des Onc., Mr. A. Comparison, and the studying reason person plan a principle in Proper process in which the studying reason person per

The problem, to one to consider an appetric mixed according to the first problem, to one to consider an artist of mixed according to the first problem. The latter has a much closer connection with the former than a problem, and the first suppose. Many of you, no sight, have been interested to tracing have necessites generations have from time to time with the first suppose. Other words, according no pleasable to time would the system of the system.

going thought, every is the failt that we have a physical desclainty of set, in common convenients, this processor has with require the manifest amount of saveline. The establishment of as the processor has one therefore system of spelling that appearing bean followed by a resultancey wave of thought, indiving a first too followed by contacting contact with a largy motions. Readon waves of through these stiffleness of an interest spelling descripted the contacting contact with a largy motions. Readon waves of through have at different convenience of the contact with a largy motion.

In writing flows woods, we have to deal primarily with their describing their activalston. In fact, the intension of the analytic voice or the elevation and demonstra in which as one of the rotal solutio characteristics of different incomesses. Attenuess were made by some ancient notions, the woulds of which wearing in certain European languages to this day, to describe by signa nexet keeless womin of their nears. There can be little doubt mod reading ; but the interesting part of their bestury is that then Allermonia grow into a most elaborate system of musical partetion. van who fact inclined to these reproduce two a lette-contented frem any new theory was like, and then chellenge the world to disperse it. We are all familiar with the farce of the seconds, which has be its history to the first becomes, borr for withshould rise with the agents. SE with the owner, and more no and drwn armin with the strumber. But they have more been ondowed, like their Hebrew prototypes, with a married value. Perhope no larguage in expelse of each named intension on English. the state of reporture was will find that not only one words altered to be their menuine and face by the relative of their compressor or liables, but the whole gist of scenarios often depends

component which, in a to what plan to include the classical control of the plan in the classical control of the classical

The notation of pitch, or far as I can determine, has never

On the Principles of Musical Notation

near of own them there have any state of the parties of all the harder. This is not a strately ligation drawn, that from propose lodge? I have see a strately ligation of the propose lodge? I have seed been I too better express report? By diphoducal, I man, and those sprease in which there of the plant of the propose of

sense in a such a their or desirable laire described in the The solidary specific has been described in the same of the solidary specific has been described by the relative described by the short of the short of the short of the relative described by the short of the fine described by the short of the s

materius, and, as is other situation cases, sharmost conventional. Of these does represent the haldstern simulated by the vestions. Of these does represent the haldstern simulated by the vestions. Of these does not be the simulated by the situation of the simulation of the situation of the situ

If a representation of pikels were the only function of neutries, there could be fittle doubt as to the superarrity of the leither system, intermed as a high sound stands high on the leider, and

* To this the summer system should have been abled. The case of the number 1, 2, 3, 4, 5, 6, 2, restord of the letters $A, D, C, d\alpha$, or of the world $d\alpha$, m, $m_{\rm c}$ are summer in France, but is done not differ an promple from an right-hermol errors.

the relating of sounds to one another. This arises from the progratice of the tree force and messing of the Octors system. could be repeated to either limit of practicable segment. But the natural recognition of the orders, seems only swife, lately to have derived once us. it is this. If your scale sounds by within an optace. The same which regressed them in one optave will also represent tiwes in another, if only some special sign of orders pitch be given. The Staff notation profits by this fast, and uses a clef ne an octove-pitch eign. The Tenic Sci-faists probi by it. for they can only seem sizes, and make them do duty is all concetrable nitubes.

It seem strange that the important truth should have been so tartily cotablehed. In the system of tetrachords, the second of any two encountry teleschards accountly manualists the earhowever, to remedy this facility an ingustions custom of dispused however, to remedy this facility an inguitous evident of disjunct neters evelow. But he will not I think bitnes one for soving that it was a development of their eretarn, not a part of the

The incorrectioners indiscrible from the war of tetrachents reserved in the makeral system of brenchools. Thus, on a harapphord, the De which we should rall throughout a planeforte an expole D, or at most as "deathle," warele, "little," enstraked 'D, and so on, were called 'Deahle D Sel Re.' 'D selec.' systems seem from an truscknowledged attempt to adopt them to the more neeful and more natural system of octover.

menerace, now new evelope of pointing anywated, or old one inproved, must be founded on, or linked to this. Only two realisms. of notation are new in use—the ordinary or Sufficientation, and the Trees Soldie negation. I take it for present was all my well on in the common or Staff notation, but as you may not all know the as I mercent I will briefly explain it. But no Tolke Sel. in in a and unmaxing term, I shall be easier call it the Letter satches,

With your permanion, I will now converse sportally, and I hope with imperiality, the ments and claims of those rivals. But first let as ask, what is the negal function of natation? It is, to represent to the eye the pilet, destation, and key-relationship of storads. Yes will observe that I do not place Quality (below) or Quantity (below) countd amongst the requirements of second amongst the requirements of given for the pilet of the

exect, or their consentations optimization.

Fileb in cussio occurs before us in two argents. There is that
definite position of a second in the long-range which is approximate
to the human one (any avera in ten ordayes), which we call obse-

bute patch; and there is the

First, there, as in advantage high. In the first montains, as you all lower, it is represently a pit off. We have specially promitive and the control of the property of the p

we did of subbe ign we price of modifie Q, within sensitive limit for the price of the price of

Next as to notelling of relative pitch. At first night, the

* The medium case of the G olds, both for the traille and issuer parts, flow in a service nature deprets delt of their rises to be super of absolute pints. The late Mr. Olighenia suppressioned used a control deprison represendantly deal a control deprison represendantly part from the reside. Some Elements of shape sects described.

note stands high, so on between the Hear, and is low note stands ber; notes on concerning hear and spaces from properly gradies and sense. But I have this supposed simplicity gradually disappears when me part is it is a preciabil task. For this reasons, the graduated sense of notes represents only the key of O subsereturn signs are planed to other the simplicing or finitency at these metals are supposed to the set of the sense of the sense of the sense of the subsection o

.

Have navely written a series of notes preceding approach, but the notical size of the steps may be altered and wealth in at least function ways. The player or singer, therefore, who looks at a passe of Side alteriation resolves adding more than a squared lantimation whos to go up not when down; he as a virtee approach of the actual salested to be played or sugs, suffix and shower and corry in the said of the key-digasters. To how to can discover and corry in the said of the key-digasters. To how to considerance specific, the made is exponenter as a generated remodelization of

the Appainant of the Court of

hadies the control of the control of

As to daration of sounds. As you all know, in the Staff

ever unit is selected, that on on a do. Nothing could be simpler. But in the Letter evelon there is no possibility of showing the relative length of scands, naless a whole or port of a her be taken, and then divided into substitute parts by commen and seencolous. Of course, it would be quite ener for the shape of the letters to be made to describe their proportionate doestion - them. e large D might describe a sumbore, a smaller p a minus, and er take of a modelet. The reflector beam tenne this month in a hopker chies of month. In common notation there are sight different lends of notes ffrom the loves to the helf desilvents. unaver inclusive); to match thus, therefore, the Terio Sol-faints would have to find D's, R's, M's, F's, L'wand T's of sight different shapes man irrespublisher unless the firesty or nathana cours the Helsow alphabet were called into receiption. In desiring the ments of the two evelope than, with reference to this polon of proportionate decreases of sound, our version must be strongly is fanous of the Staff anatom. Refers known the west of the subject. I should like to raint out what evoks have been called investion and not a growth. The whole note is an even note on the bull-note corn, but with a tail P: the quarter, note should wighth note black with a toll those of. You will find audichate quite sa distinct without their tails sa with them; and had this very evident envenement been adopted centuries upo, tone of printer's spoichet tefts; marrier, our righth rote or seaver would have definited to man maters with the suits were of he able to make their world

I have now reached the most important part of my subject. hyperlatingship. In both the perferent at the commencement of a piece is informed what her at it in , in the Staff by the key, simultare, in the Letter solution by a pleta eleternest.—Ken of A. B. do. Now we will first conquer them under an hypothesis that and the same more most to Letter notetion in Xer of A. In the former, as the ere levers the left-band occur of the bre, the woment he function, wome intervals will inevitable be taken. by the veice or linear. In the letter, nothing bee to be corned he the one which has preceded if, an inviscable and consister relationship. I really think we must in this case give the preference to the Letter netotion. We ell know how screly a child's memory and publishes in tased by having to look out for notion affected by the signalizar, in panedario-playing, but in recal moster affected by the signalizar, in panedario-playing, but in recal moster

because, as I have before said, the whole of the rate affected by at But mere on this by and by.

Some by 1. We can see that by made \$\frac{1}{2}\$ and \$\frac{1}{2}\$

which, homore, triction quite a long explanation if bother one lifty late :-

The three potentie is the first three proper well as tends thereoforched in the ward of the againstray, the final is part of alreadonates progression which inverdes FE as the rather in the long and the large properties an inclusive of the properties of mixing the large properties are large as the large properties of accelerated for these actives probabilities of the distinct and conference of the large properties of accelerated for the actives probability to the distinct and conference of the large properties of accelerated for the active probability of the distinct and conference of the large properties of accelerated for the active probability of the distinct and the large properties of the

96 On the Prescribe of Married Notation

easily intelligible to a shall to say, your signature rain encept when a countemiers is entently affixed; than to see, authority. If you take up a complicated piece of metro-auch, teh's works presently South Redon Warren Angeron will discover that the event countily of troublescent antidentals ecriphical over the page is largely due to the consists regetation that its difficulties are warn't family, and that these who cannot reaster it are deficient in catallect. It is over for those who, Her most of me here present, have had the transferable advantage with comparation's few resultships. See of the different magnetheless. shiely person as I believe to this mercrossary priester and owner-ordering of signature and acodestale. You all must be aware that some very distinguished singure and plosers have are many ecophism—the amploor is definguishable from the professional by his inferior navor of readings and it must be berne in mind that this arrive not so much from a resolution or physical incerneity to play the notes written, but simply. recall recets a first which car Stuff entities immens

cere in and that are twelved that is report men's friendbenous the authors fan, as a rad, and report perfects in the repul mental officer which our flow fractions request. See a report of the repul mental of the repul mental of the section as a difficult and composined, or short for our difficultion of the latter species, note whose stilling per layer the latter to the first section and composined or short force of first, or the latter species, note whose stilling is placed repul from any years say, tendeduct one of the Coverne from 5. Schiller's section of the latter species, they show that the coverne contains a section of the repulsability of the coverne interested may compare the two.—

An ion or in 10 C 40 71 40 11 4 100 as it is the same a There is yet one other season why the Staff notation becomes difficult during modulations; it is this—composers have appearance. really a great assigning to Sequent change of signatures. In scenar form in the major key, when the accord there is, as commenty hoppens, given in the key of the dominant, it is not eveside-oil etiquetta to chaupe the low-signature, so, m papils' first

easily in this form, the master may safely look fermed to a firm

or many emissions of the nondectals required to from the new key. You will all endows what I say, when I remited you what

It will be observed that in certain cases, namely, when a complete change of key has taken place, but where the author has not shauged the keg-algueture of his Staff notation, the Letter system shows a decided superiority, for here the new key has been formally amounteed and northentally altered counts have been disparted eltografuer.

Composes, by long to chary of introducing new key signs. tures in their stall, have nanocessarily multiplied the namber of flor. But, on the other head, in the Letter review the ker, or pitch of Duh, is changed, not too seldon, but I blink very much too after, though in our class of energies, from which I will by

Just new I cooks short the confusion offset of those society, tale which must processful be introduced in the Stuff sentenagen a mercir temperary modulation. In the Letter netation evaluate areas to more its Dak, with every change of key; but passes through a series of keys, the Tone Schlades make goest effects not to change the Boh. Take, for example, the beautiful brung, tree 'For those at Son,' as given on more life of Mr. Curwen's Book on Hermony. The second itse (of wards) is rightly turned, in the Letter notation, into the key of G, has the



Thereton Embert a branifel account, which might be indefe reshoused, are actually given in the Letter notation of the law of G Of concus, the first is at relicably in the key of Cas syribing possi-

the two first sections of the following

two son airco as if in the form of C

In thus treating sequences, or sequential confied One more ensured, and I will ness on analysis, through at least relation hers. New, diffiocars in the Staff potation. I am utillo oppringed it would be for more difficult to Letter potation, with each remove of strictly given Here is it !-

per per per per per per per per the ten too the true too true the true se.tid :- 1 kranananan an anana haranan ar 66 to to to to to to 10 to 10

PAR II II IE AE AE AE

FEEEE

On the Principles of Musical Notation.

I have already tried your patience much too long, but allies used to say a few more worth by vary of strancing one. In super-senting should price, that intention reache. Your layeast is one only, in large, we show, namely had, in the Leither relations produced to the same of the same particular and have sent with the tries and the same particular and the same of with the tries and the same of with the tries and the same of the same should be a same of the sa

there is no collected about 15 are 16 as y very the collected about 15 are 15 as y very the collected about 15 are 15 as 15 are 15 as 15 are 1

But an increasing decision have appearing their to use Do we instruments? I think not ; for this yearen : I believe that in senety-nice cause can of every bandeed, the first keypulse of a singer is, when a yould part to placed before him, to consider the note on recoveredian a locable : if he is a pinniel. It represents to hen the position of a pretain black or white key , if a vicinist, the position his fregor should take on a string. For assemble, suppose I write a wince in the low of C. but on trul I three of not could bright enqual, and provide it to CH. in ofteh-so effective, that probably not one in a handred observer leting. What here the roop concern dans, that they should because singing car work a mere triffe higher in ofteh, be dragged from the pure sunlight of the key of C into the toroical reason of not observed and a mean trick as this; he correly note has orn through the opposition Key of C. and writes Key of CI to the place; all his Letter notation remeins precisaly what it was broadly, it gives the Letter natetion for conal parts on edvantage core the Staff which is increase.

By the preference of south the case is for otherwise. By the control of the contr

To my that Letter notation is not apt for instrumental notice is, it must be conformed, to say that it means be used for the ligher walks of our art. I helieve it cannot.

on into homeous six enough is ensured as limited? I think not in he reconstruction for six of the contract of match, such as checked and hymno, as yet of you can feet out if you give it in sixt. I saver you, if I were railed again to rare a charge choice in an ageomatical definite, I should achievability they say no contracting the restice Letter notation, as being the simplest and enables they not a supple of the contract of the concentration of adjacency, a range to one over the

amonto metaboli et alaterarea a emajes isud nour Feld.

An Highdiguit ou High with mellin, the self-field, nour il for an An Highdiguit ou High amonto the results are resulting or spilling to result, the Sigher krauches of several and the self-field amonto the results of the self-field amonto the self-fie

There is one close of pressure to whom, I believe, the Letter system, with the continuar relation of letter is believe, as more troublecess than the Holf motions, without in the letter, as more troublecess than the Holf motion, without in patch I make, those who have a section more of this billion patch. Holy present than single say; interval convectly without patch. Holy proceed to the relation of the relation of the letter of the relation of the And the second s

are figured to the control of the co

und, in a humal seam, both in Region and America, and with made states



On the Principles of Manini Nataline. 100 simplicity. The mind has nothing to carry on with it, every note tolls its over tall both as to thus and pitch. For the doubleshare I propose to put a shape against a discount, for a doubleshare I propose to put a shape against a discount, for a double-

sharp I propose to put a sharp against a discussed, for a doubleflut a flat accident o scuars. I supposed a character, mr a country for its chromatic harmon, as a proof of the standbrite maned by this notation. He weak point is that it is very difficult to write in magnetical. But organics could be easily tought to transfer wish to distush the uppered form of writing mosts, but I must see that it would be a great gain to children and adult beginners if pinzoforte, harmounten, sud crysta maste were thus printed. for knowledge of kny-significant is model, but any piece of mines maker representing the nort bry to the right of the white or normal note, the space note the send by to the left, and the round note the while key itself. After leaving to send more discountle: fate in the expensive simplers show what noise are I am not without hope that much an evident improvement in neteden will have a dair total. It is not, so for as I know, profor the harmonium in this notation, weakly must with much encorregueres.

100

De first real k 1950-1960 (Street, Street, as is to be about the control of the c

remained records would be of defection some and result to resolved amone chiefs. He weak! not on further into the religion then, as he intended to refer to it on mother populors, when he could do

so with more scorner and dated. Ms. Boungert thought the existence of a arms of absolute

which could handle be constrowed morely became at different times. there had been different absolute witches attributed to the note C. What was implied by the economics was that a merco, had the trans of manufacture and the regions of the arts county lies and the was able to remember it, and bad remembered it ever sings, so piloh: there was a great deal to be said on the theory of notation

Dr. Stattit: Not so much so as I was Mr. Browners was of entition that sould become most wan the

could be taken as the best to be indicated. He had beened derived a receiver of the level the nature of which he would briefly reduced. Taking an ordinary staff of her love with the unity indicate. Hacag at tentiony was of the lines will has unitaries C on the indeer has below, and sectionary such line or sance as a sentitione, was anxieted at the octure on the first ledger less show, and therefore by saing four stars, meakow the other,

shape by the position of the noise on the day.

Professor W. H. Many still he would conduc his remarks to our forefathers, did a wice thing at all as adopting a system of new as they reget have been arivinally, by the interposition of elarm or flat circa so often as those cirus were necessary. One amplify as between the established notation and what was called the Torac Set. In reduction ... come by that there was a residely. from in send in the first restaure the armstern with the confidenof the intervals as originally used for the natural scale, and then the variations which occurred fixes the change of pitch as you proceeded to modulate into different leave; see that he would not

from on these of a pullar time, or is short in four parts, by complemanyorities, and these who were more highly framed in the set would firm on idea orem of an instrumental piece in second, tak the (Dr. Palva) filts not know whether that small be possible in the Drein Sin-fe materian, even in the core of a production. He restrainly did not think if out all be draw with an instrumental score.

Mr. McNeuwr mild all designed Touck Stabilistic had a very

Mr. Microger and all modes for Dark Bulkelins had a way for the Tarthell Mr. Marshari, "soften in Mr. Microger and the Tarthell Mr. Microger, "soften in Mr. Microger in the pair treat piece," as well as a first partial of the American of States and Stat

one note to the other.

Frethear Mour and his symmet had reference to De Stainer's observation, that in the Tonic Bolds system the performer, had nothing to cury in his indict. He could not see how an intilligent marking our mode from any system at all, and yet have public to buttle, the mind which, the reading system at all, and yet have public to buttle, the mind with, for reading second to him to

Mr. Hennam soid he had no doubt Dr. Steines was aware, citiongly he had mude no altation to the fact, then an investme number of notations had been proposed within the last fifty port; and there was a work published, in the form of a report of a receipt of Zerish-which he had some continuity allasted to an Freede weakings, hat the cryptal of which be had not been able The second secon

tended to remove the efficiently, because they concentrated the adjustice on the martinular places where the world belong accepted. have constitute about reads, and whether that interest was not before him in one way or mother made, as he believed, no different whatever, so far so the individual interest was conby Dr. Stores, Affording must print to any enisted your son. sould read four lines of the letter notation at a time, and was, of course hoursed to believe that atatement though the first way on its new to him. With remed to new objections arising from the difficulty of learning certain theses in the word, there was no art or stirms whatever which could be practiced beyond its very applied stress without horses in the word meanwalk flater should be very sorry to see (according it receible) any embers of notation invested which would now there who learns made the towable of thirdrap. Ho leaked apon it as a great efacational specified within P to C was a tract and to fact there was now Title wort to be remembered. These who wented to facilitate Me Suntay Takka thought Me Helish would hardle contant

Me Securi Txxxos thought Me Hallsh would hardly contend that some of the difficulties which were enterly possessions could be my advantage. For findames, express a press of most a lagran in the key of H, and then modulated fact the key of C—there, is made of thereing the key of C without no in ordinary factors, assert every active in the unit would have an accultant future it, and is not according to the control of the contr

the residenced system you might have the same interval repreciated in half-desse different wine.

Mr. Arm B. Corers and this difficulty neight be not by damaging the signature.

Mr. divine Trains will that was not done, as a metics of

Mr. Survey Taxant sold that was not done, as a metter of first.

Professor Mass; sold it was done in many instances.

Mr. Restau Versa will be bed reduced the Wellish to see

it would be a disservating to got and of three difficulties.

Mr. Hitcher, and he was realware electrical to accidentality which is not include an accidental to which a secondary control of the secondary, beginning as the key of R, need then going lasts the key of C, about tomostificately—(though that would be enthre a carriest composition)—there would no no depoties to the energone changing the agrantage.

Mr. G. A. Orsentin mid-horizoida mash kir to hore sa expension, of quiston, from his, d'illerent performer person, on the supper from per forces by Dr. Bishor, for inflaming sharps and fine by the sharps of the notes. He had been holding coverfally over the

maps of the notes. He had been pricing covering over the specieses, and it call not likely the most cofficient persons could pseudop make a movieto no rendrag it. Although streight be the high-first species of manional solution, he should be vary pink it find both the staff and inthree speciesa supermoded by it, far he had never seen asystriag no perchange close and respir. If they staffed it for a year, he fit was think they could seem to any configuration that in reas a most adoptable system.

constitute of the control of the con

arms were very frequently the result of the tender's susquerty to explain the subject, and not in the notation stell.

String's paper with round to the representation of enough by written marks, sold that was a extinct to which he had paid special ettention for some yours, sai he had found insupership It was a very different those to recovered increasions in secon and hat in excess he cities, and there were a great rater sounds which were not numbed at all. He had found great difficulty in while he had been endearcoring to represent the different Earlish peruliar internation which characturined its dialect cuite as sweek at the promunishes of the vends, but, unfortunately, he was applie to device any efficient mesos of representing it. With record to the different reviews of notation, although he was not had not with: for example, in connection with the Letter notation third was a siff older one of Boroson, in which the interests were recreated by favore. This was published in Mills but it through them, and the fiele a grave accest, and it was being tength to many thousands in Payle at the present day. M. Golffen ... who, carronaly enough, were teachered a deafand dands

 mode, not be eight, primary, to syndopine the styring saysting about the instandant of the street in the species, as over neight on comments adjust, but he also the human in belong the syndopin comments adjust, but he also the human in belong the syndopin comments adjust, but he also the street in the species and the street in the species and the s

people who enail rend massis was smoot discretifiedly small. Be honoused the exchanism of those teaches who sold it was vory easy; but wife, when you could not make cord any discretinous and final one passas as any who could read muses at sight, the thought it was a flagment to matchedy—therethe decoders as a body, or bleft papills. The only was no which he could look upper it was that the thing facility was difficult.

Mr. Histaan skil, as should be said official.

De Siravar skil, if that ware a, is thought follow really aught to go through a working process in the closural societies, and gain of all these who comit had not alreas. With respect to his were suggested of authition, no doubt it had been inverteal long any.

Mr. It is had been just be should be gain, as in each left were support that the contract of the support of authority of the support of the support

considered so beneficial

THEFERMENT: OR THE DIVISION OF THE OCTAFE. By R. H. M. Houseger, M.A., F.R.A. S., F.C.S.,

Pellow of St. John's College, Oxford.

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Higher Approximation							42	140
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In a previous years read before the Musical Association on November E. 1874, a method was developed for the derivation. and Dreatment of a class of systems of outerg, to wheah the the notes of any such senters one he arresped in a restources series of conal fifths. A netation was described, emiliable to written rough, he which the position of the notes of each systems in the fundamental series of fifths to defined; and a hvief sketch

In Mr. A. J. Ellar's recove on "Murical Chords," and "On the Temperatural of Instruments with Fixed Topos," in the Proconfirms of the Borel Markety for 1966, these is a contrar account. history of the derivation of the octave. The solution is the now membrood will be executed with a view to affactors: the develop-

formation abtainable from Mr. Klin's nancre In the diameter of Helmhelto's work, his theory of conscenary and discourage will be examined in some detail, and practical applications of our systems, and the construction of pa-

the with the remark that, rightly or wrongly, come of perfect gaternal between the extraorities of a series of twelve purfect differ: the Pythogorous, or dissensed third, the third made by free perfor fifthe on and other retornals formed by the notes of each a some latter up, and other intervals series by the news of even a series bearing analyses a nature. The appropriately free third. however, formed by sight fifths down, has never berne the name _

114 Temperaturel, er,
16. We pure at more, with this observation, to the beginning of

16. We pure at once, with this observation, to the beginning of the occentrosts entery. The work of Memorae, burning the data 1505, affords to information as to the state of the problem at the

The portion of Mansone's wast, with which we use most directly exceeded trails of systems of scales. Almost the volks of these we constructed to as to solitop a greater or hes marker of perfect concords. We salest the scale of the key of P, with 38 silection in the colorest. Mansoner dignifice is, and many other of his systems, with the title of "Spinson Professors." We empire the sizes or his flames of the keybord at a 11 M.

pertinual vibration numbers, which

orlar is Mer	eense'e table -	_
		Erntern of Zhofest or Assersa-
F		
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× 0		19:00 1/3
		/

 The works of Salane and Zerlan, in the 16th contary, not no the worker. Salanta is said to lasts assumed and Zerlan, miscaled, the mean-time strates. For the schillstim of the resources of this system, as regards the chords annihilds we wont roler to the first cost of this resour

the clotted arterment, we must ready to the last part of the (p. 15). We see how haspired these resources are, and yet has coming the must as made of the limited mancher of notes per The heptered for this scale is affigured at p. 188 of the 'Be Instruments,' in Morecum.

All the black large ages doubled, and also the levy for a

Two pairs of their large are placed one pair on scale offs of the O key, and these pairs between b-c, c-d, and d-c, respectively, suchould in the result positions.

Encourse communicating systems with some emmples tables from Sultans. The first system is used of 25 soles in the option, which is given in a few provided paralogous to the above, this is called "options Communicative Conference on the con-

he calls (Spaces Ogenein Performance). The principle of the Thin and it of their smalley of these some contracts on the contract of the source of the contract of the contract

time. The state of the state of the desired at the state of the state

As agone for, UR, 115, and 120 ever-given representations of top-lower for reprison luning various numbers of states in the season. These are interesting, and some of them are of very great complexity. On page 126 there is a very researchable table, in which for make for the Girmanites of regan-pipes are set of fire a number of bifurcat systems. The repul comprehensing publics or signification of the complexity of the complexity of the season of which is not fewforther creations, that appears to the selections of

17. The next writer worthy of attention is Hoppisess. In a of the above restained scators of \$1. He solders that Salines and Marsenne had not the knowledge of the methods prossure for its countraction, and gives a correct solution by the sid of logarithms. The work appears to have been fest unbhaled before

Harmonics." The date of the second offices is 1770 Among the remarks in the profess, a curious one descrete attention, at that time. It consists in temperate the major third second on

to the rule :-

Saterval of major third If we seek to test this we find the proportion :-

and perfect third whence the third thee derived is \$4500 fac.

The recognition of the intervals have of course well-buy to do with the circle, and the assessments somermal concurrence in manufacturated

In speaking of the system of mose tones, Smith observes cores dut for that the third formed by four fifth is a cores. third. He calls it "the valuer tomperament", it is the old form the environs he than recognize to put the thirds 60 he and girthe the fifths. From our print of view this is of doubtful correctness. We figd that fifthe are muck more sensitive to lamperament then thods, whereas Smith reclines to the opposite view, but evendesented. This he calls 'social harmony

With reference to the remark made met now, that fifths are reces concline to temperaturat their fixeds, we must note Call counter shortly how this stands. In the ordinary cotal tensors, ment the thirds are sharp by about two-chirds of a commo, and we ment admit that the amount of error in the thirds is not contar the discussion. It is no doubt matter of quinton to some ration), but the writer's own appeleres is that fifth which are needed of the mean a two-kinds of on course, are released for a second on the course of the

manic powers in all any very to Medicine comservations are supported by the property of the com-Secution to a support in regard powers to support and a support of the companion of the companion of the sequence of the companion. Her made to the theorings, in the sequence of the consecution the security is taken by any format angence. He assume that he section is node up of for format angence. He assume that he section is node up of forportion cythern, with fact into almost class of the companion cythern, with fact into almost class of the comser that, from the fire issue may be a support to the comtant to the companion in the companion of the comtant to the companion is the damped of way assume, the of the true and contains in the damped in very assume, the of the true and contains in the damped in very assume, the of the true and contains a the damped of the contains as the size of the effects of the containing and the containing of the containing and the true assume that the containing and t

the significant state of the consequence of the state of

Scalin gives a number of rules for determining shoulategitch, or the number of trainers meds as a given time by any note. The first of these depends on the medianated properties of the membership like rost on the observation of boots. Note of them are of predictal values were, as they the set which if being performed with softleresh accoracy for cory purposes. As Smith's systems follows.

As Smith's systems led to a very margini temperament, they save valuelose, practically, without additional notes to the keyboard. His direction for cellinary keyboards is an follows:

"All incorruents are made with a chargeable code, it so

more proper to tune the defective scale to common use by making avery 6th; and third to the more been heat ereally critic, the

This erator is injermediate between the all unequal temperawest or strains of mess tones, and the preference agent temperawant. Due on improvement on the former. The more record Herking on the Orean, p. 180) Smith describes (n. 197) and asymmetric for introducing additional notes into the harreschood. of descriptors. There is no news to a returns bonce in Militawater are introduct to constitute a regular negative evident extent melion to it. The action of the stops was to very the period of the sincle of 17ths removated on the Joshoval. Thus the the one outsidier the respects of fat lave, the other these of

Pinta: becaming-p-p-f-by-cy-co-dough

Mr. A. J. Ellis has recently oursed to be constructed a harmanings in which this principle is further developed. (See Proecology of the Bayel Society, 1974.) The worker's counter to sporactical

the remark lane. He save, at n. 227, using expressions almost identical with those of Helmhofte-- For nothing sives greater slow bests. bly the slow undalutions of a class shake now and the n introduced, are for from being discarrenals "

10. An invariant tract is Woodbasse's Ecosy on Maxical Interanother, which we now index to heat less nother. Woodbrass gives

The solution of the everyd problem street by Woolhouse is: chiefy interesting on account of the properties employed in the to construct scales. He provides a considerable member of scales, but, in consequence of the considera of many nature of the system, those do not fulfil the important conditions of a regular system, will test become of a regular-system system. The distinction of the condition of the state of the state of the state of the regular system. The distinct is noticed to a condition of the state of the state of the state from the

notation can only be employed in negative systems.

Workness then (p. 40) treats the Happhorian Striefen of 12
in the name way, and femiles by Striefing the notare into 19

separates of miscle) skell. This system is negative, and of the first order.

Weolbean's explication of the 'icris secon,' searchines all of Turtial's tone, is removed, as are all explications before that of Helmhalts; etherwise, as a treating or miscle and on the

any of the entire of Morenny.

It A peper by De Horgen, 'On the Boars of Imperfect Consemance' (the Fill Oyane Vall X js 15%), contaminations reference in our religiot. He implyes capable temperature at mixture as the traff of interest, and joine reliable the intendermation of hopershine of "threeboar relice has termed of equal temperatures are architecture and nice need, inheritability in religion by this three is the vertice's

The rest of De Morgan's paper in fewage to the present subject; but we may remark that his treatment of the problem of beats belongs to the period which proceded Helmholda's

In redigations.

25. A page by Hernshol (Quartedy Journal of Réseau, Yell Y.,
p. 2008) proposes recition soldes. In one of those, which is preferred,
at the fifthe accept one are parties, the journaling one entire of
course by a Lythingerous commo. His observation in . The closel
thomatis in the journality of profess this observation in . The closel
thomatis in the journality of profess this of the finish, here, on the

course by a Pytholgarous content. He observation 18, "The clouf housiab in the possibly of profess thissis of boot infinit, her, or, the effort hand, noge of them err in azzers or defect beyond a comma." The defection 41th in taken to be J-Ne (table of topy of p. 565, column B, and row Sol). New on errors of a comma has 40th makes it walfa for use on music, in species to believe to 40th which is a common cost of time, So that this recognized would be

say mothing of clines lays.

33 A considerable work has been carried out by Mr. H. W. Tuckes has been paper as in "Sillinessis Asserption Journal," Yed.
XLMY, July 1967, y. 1. It is difficult to convey a good don of the details of the hydroxial has there proposes. But the general
XLMY, and yet for distinct under of notice, each proceeding, in

successive fifths. These are:-(1) keyrodes, (2) thirds, (3) arrently, (4) thirds to (3) for the winter land, (3) arrently to The largester in cosh law are those which from parties 45ths

The keypotes in come any are show which these persons accordanced from the toric. Thus, in the key of C, we have f-e-q-and all the others are placed with reference to there There ex-called kernotee are, in fact, placed according to the

writer's principle of 'expansional acceptances.' This is, however, annied only to the 'heynolog,' and the reneleday notes of each arale are retradeport as averlarges. The relative chardensthan in the writer's keyboard-three times as large. It may be as well to meetles that the writer's invention of this arrangement

As for an can be indeed from the description the writtens scale of Mr. Ponto's brethoned must be rather like that of A narror on the primary keyboard. But the number of annihance is considerable, and must lead to occurant modificative of the

The writer indexes the distinction of the fire series to be unafford approximations enficiently close to make one series of lifths serve for all purposes Moreover, even the seals of 19 notes of Measures provides notes emitted to this saveagementindeed indicated where they pay be placed as auxiliation but ther engest be used as kernotes. The chief eliection to this form of keyboard consists in the difficalty which arises from the difference in the arrangement of the anythery notes and the accalled hermates. The player way want to make any mote on the instrument a kernois, or to take it in any other form at a

24. General T. Personet Thompson constructed an enlarge color cress in which a number of notes informing to the positive system of perfect thirds were communically by three keyboards of great complonity. On each of those bushounds a scale of the refinance boxkees are then astrodoord an each board, for the performence of kers related to the principal key of the bessel. Those are natrodared in a number of different forms, wherever they are wanted

of different lares, conceased to which the twoler scales of the Most visitoms we breedray vasifies A symmetrical arrangement of the notes of the instrument was given at p. 16 of the first part of this paper. Notwithstanding the complexity of the keyboards, performers

In fluxural Thomson's tract on "Just Intension unctical rolet treated of in the double second of the key. It is eary to see that the second which forms a perfect fifth to the dominant (or D in the key of C) execut be a perfect fifth to the

General Thompson employed the notation of the system of 53 in his calculations. He appears to have been sware that his system was really different, and he suployed the notation of the system of \$3 above, within such Torola as provented the

General Thompson's account of the way in which he cenplered the respectuard is well worth attention; to vary the patch he suried the weight by which the string was stretched, as well so the hearth of the stoner. His face of the instrument is

25. We now come to Helmhalts. While there is in his writings has fittle that is strictly new on the division of the whole subject usobably own more to him then to pay other stude individual.

given by eight downward stope in a perfect stoke of tithis and the plea of tradings the third perfect and of monograp the princts error that results to be distributed ordinants suggest as the fifther. the first ineminder of this approximate representation of the

Helpholdic constructed a learning research treatment. team to the extern were distributed between two ordinary manuals. The tames were intended to form a series of a reafters the the tenting the year's would not be cotte regular. The given for the tuning the result would not be quite regular. The

In the Servetony's Appendix (ed. 5) there is given a plex for armounter a project of the same kind on one maces, with charge nedate or other accessory spothestiers, by which the marrant could he until tens in one har that is desired. The writer, however,

especially when applied to positive ereterm. Make he had a place to prove the state of the first advantagl to the paper. The accounty for change arms in the first instance from * Tim monature profess primarily to product dithe and thinde, the development in due to You Cottingen. Plans 416, first side.

But Halmbotte's great work is the physical theory of opponames and disconance established by him, founded on his theory to enter into the exhaust to some ratest to indenduce the encedited as important portion of Helmhalta's theory of hearing in the

of simula tones, gonetring of pendulum ceribidious, whose vikes,

When any complex system of simple tenes falls on a contransm senorant scale, such as is approximately furnished by a harp, each simple tone socks out said impresses shelf upon that portion of the scale which acress with it in which, and a finish

but herons a certain small region surrounding the noist of corresponding pitch, a simple tone does not affect the reacount scale and on this theory dutals tones of different nitch imposes theresalves on different sections of the narrows organization of the con-(This Emiling interval varies slightly towards both the autromo-portions of the scale.) This point cannot be too smoogle instreet upon. It is the bests of Helmhalte's theory; and we

must digress for a submost to exempted on an everylable in an exposition of the enlared by a high authority 26. In 'Typdell on Sound' (Bad ad p. 206) we find the following adalescent as the waters why no beats are andible in

"How our rates of etheration are \$22 - 254; difference - 254." 'It is plain that in this case we con here no bests, the difference being too kigh to adout of them,

The renece, then, is been said to be that the heats are more regold than 222 per second, which is supposed to be the limit of

This is, however, not Helmholte's position, Helmholte's theary is that notes an octave agast affect different continue of

Attention was directed to this passage by a recent paper of Professor Marre, of New York C Appendix Journal of Science. October 1874). He does not closely point out that the above

"But if Posteron Typical had taken, in place of the obers

ficks, two ficks giving 60 and 80 vibrations per second, by then even the interval C, : C, --in our notation, C--



-- which gives a difference of \$4, is the supported from consumption Hover accounts for the difficulty by his arrestments on the Finite of register of analytic heats in different parts of the notice which give interesting results, and complete by experimental givelence a portion of the theory, the nature of which Helmholts

We reased here outer into the details of Dr. Mayor's paper demonstration of Helmhelte's brouthests of the australia of tones in the our. Again, Helmholts doos not say, as Tyroladi makes Nex. that heats blend always late a continuous round when they "and these are really andfide, in the more monner as the ilbests of it, so although they sound somewhat weaker to the

For Helanbolin's expection of his theory we may refer to discount as the fifth C O, both intervals giving in air \$2 heats. per second; and he proceeds (p. 272) to account for this by the the motor third, and inscentily for all eventer intervals.

It is to be noted that in the third offices Helmholtz sheareception, and transferathis to the memberne building, the theory of which is given in Assemble XI. In a research on a 920 siders the resonance of the crypta of Corti to be only such as it

27. The heats of imported by topologopous greater than the minor third are, in penecal, produced eitherin pains nearly convengeding in pitch. Or-

* Compane 'Philosophised Magazine,' Vol. XLIX , p. 565

(2) By the interference of difference tense (Tartini tones).

(2) the each other, or with hemistics, in poles nearly occursposi
(2) the following figure libraries the need of production of the
heats of a fifth should a comme out of time, by interference of
harmonics, difference tones hear disconnents.



The horizontal lines are supposed to be made up of resusced

points, vikreting in vertical lines. We may suppose the hardnostal line to be a motion of a short of wines standing at right

angles to the paper, and somewhat similar to the sheet of wress which exists in the piccoffede.

wheth existent is the placeaffects. The first figure shows the way in which a cassionly note in decomposed into simple cores of the hammonic series when received on a function series of this light, The assound figure is stillarly, but placed though all the later places in stillarly, but placed though all the later places are present that the later has been assured to the later than the later t

lime inclinate the limits between which the points on this has any be supposed to exhaute.

The boaring of this theory on the deviation of elementary conceols in cleaving, but it is superable to devial to his how. We must only any that is different exiting from the mode of derivative orders have smooth orient intimated by the Day, both in that is referred to quantities of outsimization and distinguishment to a physical course, it, the production of boots, and done but the title that seconds of the control of th

tim. We may refer for one mannest to the explanation of the interval of the fourth or fraud free from bout heads, which we occur instance of the difference between the tree pushes of view. If the fourth be g_{μ} — g_{μ} the deaths coolers of g_{μ} and

the twelfth of r_i will both fall on p_i ; and if the two notes are not exactly in teach leads will some on that sate exactly as element in the above fager. So long an executing to the $h_0 p_i^{-1}$ wire, the horsestates of the lower rote are above suggested, it is impossible to a sample only physical comes for the beats which will write when the content is trapped to the other which the content is trapped to the content of the property of the content of the con

our eye no explanation.

The problem is thus reduced to the interference of two search near each other in pitch. The beats of the largest pitch appearance of two search pitch are about a problem.

In applying these principles to the noise of any imparish, tomoral, we notice that, if the noise not nonated together with this the viterities a mankers of the frankezentale are userly in the sailing in it, then the leavest pair of interfring harmoniae will be the harmoniae of the spit over in the first noise, and the harmoniae of the spit noise in the first noise, and the harmoniae of the spit noise in the grant II must be submissed that the

or ten year occur on one services. It is miss for individual thick the color of a harmonic in denoted by its withoutes with to the fundamental. It is not to be a service of an imperfect diff, where the fundamentals are needly as if it, is, to result, or alternative of the thirt nodes of the first note, interferoe with the notice, or harmonic of the needly or of the record it and in the man of the death of the needly order, of the record it and in the man of the death (3; 4), the double origins, or harmonic of the fourth order, of the first note interferes with the twelfth, or because of the often seem trueble to note the role. The combar of build reven by two interferent notes, is, of coness, the difference of their others.

As an escepte, let no determine the number of bests per as an energy, on no constraint the party ($c_1 = 276$). The second in the equal temperaturant 20th $c_2 = c_3$, ($c_1 = 276$). The find the logarithm of the vibrations ratio of this interval:-

14x = \$150000 12 - 27

4000004 - for ratio reveled (fattering of temporal 601) e, has 256, and e. has three times as many valentions. 2 8850623 as lon 768 000 (c.)

Log. page 9004944

28345709 = kg: 767-233 (tempered p_b) ANY - 1867 number of bests per second.

20 Ot warder of heats not rejects. For the theory of difference of topes we must refer to Holzaholts. We shall keen accord the last that the rebrations number

of the difference tame is the difference of those of its primaries. Bousple.-To fad, the number of bests per second of the difference toward of a me. of the count toward related

From the obore example we here $a_i = 256$, $c_i =$ as 282-566. We have for the ratio area (necessary) 27

log ratio on parties sed by 256 - 2 4692400

2.508(803 -- No. 2003A6

55500 Alberton con 63.000 II 106 differents own displacements of the difference tones, where become not produced, are the most disagreeable effects of the equal temperament. If the chard were in period tune the two difference tones would

Distinction between leasting discussions and vanishing for discussion. We have see for seasonal, with Birkhall, the discussion is extensively date in the presence of a stable beats. Now, consider two mans aspeaded by the circumst of the horseast consider two mass separated by the circumstance of the state of the sta

best being disseason and assolidation conference.

If "Their resource inheritable that has been been disseason to the conference of the conference of the conference of their resource of their

eierien stiffette stateriiren in genetet.
In suppose de My Hiller view, un aufgitt neber de sen emperi.
In suppose de My Hiller view, un aufgitt neber de sen emperi.
In suppose de My Hiller view, un aufgitt neber de sen emperi.
In sen de sen en entendenen deren Ern ern der generen des promes ernendenen gibt die der verbeilen der entendenen der versichen der der versichen der der versichen der der versichen der versichen der versichen der der der versichen der versichen der der versichen der der versichen der

coller. The weller believes, on the ountrary, that the preference of certain and olls sequence by the over in entirely a metter of elasation and caston. There are he as do that the nations of whose tasses contain sequences which may be called question losses, whose transes contain sequences which may be called question losses, entirely forcing to all our sides of mains. The Rigypina darks are mentioned as an instance. The writer's experience with the enhancements burnarium, on which all manner of scales productble from regular systems with possibility perfect fifthe one be nors. the sacres cornance of the distoric scale ore disserverable This may be altributed to the adoption of the tempered scale as e standard, through oveton. These notes which deviate wishin manie seconths...however smooth the chards are above found dispersable by histories of this share. The true prince third in the xinor sone is often elected to elex, as too black in mitch; it. decisies very widely from the tempered note. The writer is annul terrarrence as a better storcked for welody surnences. then the Subsect goals! Experimentally, indeed, it supresses that the sconences of the Pythagorean scale, with dissensant thirds, ere-As the randt of this discussion we harrish all consideration of between evenue, believing that the automatics of pay soprague whetever is possible with custom. As the rough of his whole dispussion, Mr. Ellis gives the preference to the meantone reaters, which is substantially a murday extension of the old derived from the ordinary loveboard by the untroduction of addi-Another distantion of the properties of certain systems by Mr. His will be found in the Proceedings of the Bayul Society for 1874.

1 The service observement that even temperature to the host middle

the space occurrence and a community of the space of the space of the residence of the resi by personnel transport of the first senger in the senger i Olish and Smothl in 1.777, or believes 15 and 12. Hence the water tone owner Book Size of the elect of elastical Trive and to be carried that the Brooks time of expose in Egylend, and most electricity were found to the many time enters. Both clothed the cretary is thermore, and it has travely name for discretize the entire. Consequently the arctives non-offered to much formerly have been very generally received as the market arrellmen. consequently the many studied, as well by numbers and remay which here to

We have seen that the internals of regular systems are to be regarded as formed by autoentoon of fifths. We have therefore only to determine the department of the fifths of any system force to the state of the state of the state of the state of the early from the log-rate to any given note of the scale, we thus know of early the internal which say seen hote makes with the

50. POSSTER STEEM. Second of the Key.—In any positive system the second of the formular be derived to two years first, so a 50th to the demi-

and in which one the derivation is by two filter up from the logradion and, secoully, as a super shift to the unblocational, the logradion and, secoully, as a super shift to the unblocational, the which case the derivation is by too fifths deven from the lograntic. Thus, the first executed to it of §1 the other, A. On reconstant the importance of this densitie form of second, we will creative the derivation of these two forms by monos of the softwary mind, is

First, two fifths up and an estate down give $\begin{pmatrix} 1 \\ 0 \end{pmatrix}^d \times \frac{1}{2} = \frac{9}{6}$, when the fifths are perfect.

He can be compared to the contract of f, and f is the subdominant (f - f), and f is the sixth up gives the depressed accord $(-1)^2$, or $\frac{1}{3} \times \frac{1}{3} = \frac{10}{3}$, which is the wint of N^2 to the horizon, when the fifth and thirds are

The ratio of $d: \forall d$ is then $\frac{d}{d} + \frac{10}{2} = \frac{81}{87}$ which is an ordi-

many common remember that our systems only give approximations to this result, but the best of those oppositionations are very close.

very close In the harmonium, with the system of 53—which may be regarded for precised purposes as hereing prefect fishes, and very userly perfect forch—the cochange of d for M in the sheat f—a—X or even in the harm with f—in protects as a filter of

discoverages intalized in any size. More Tellor — The enter third is not no interval which is very stringly defined by hatte. To choole found of secretizing defined by hatte. To choole found of secretizing depends on the a sentite of first, the white office which concelled the lower-color several in the order of hermotics (x_i, x_i) as one of the interval x_i as the order of the interval x_i as the propositional to said a chock, where the x_i is in approximation to said a chock, where the x_i is the series of the interval x_i in a size the energy field x_i was divided which by experimentally

periods; so all this given the trial experty where the periods desired by that follows. The intermediate from the period desired by the field out of periods are the periods and the periods of the other length of the other hand, and the register of the other periods are the register of the other periods are the register of the other of the other register of the other of the other register of the other other

Coston cukes such pussages sound effective, especially when the accommant is slow enough to easily the our to verkee the finances of the shoots. Mayor Third — This interval has been already discussed; the note taken in that farmed his visits fifthe down.

Fineth and Fifth and no remark
Depend Fore of the Dominat - When the dominant is
not a problem to a the following on

it must be formed by alreas 48th down from the torpole, calms we regard the legiption is charged for the necessari, in which case, by alreading the subdominant, we may retain the 18th for the normal position. The most preference occurse depends on whether the 6th is suspended are not. Thus, iff the 48th in supposited, we may write—

For if the subdominent by f_i its third must be \searrow_i , and its sixth mass by \searrow_i g then makes a fourth with \searrow_i which is non-boundle to the ear, the fourth must be made correct, and the

wise got over by welling the passage :--

More Mode-This interest is prefit plumpy defined. The small form to μ_{th} which is got by sight this up the sign reason and form to μ_{th} which is got be sight the μ_{th} to get be strong and the sight is strong to the sight of th

internal, then, must be kept strictly to its best value. The \(^{1}\) to get by pine of fills deem.

In thereis framed of a secretise of minor thirty, unjoin statute frequently occur. There must be taken to despote them so as to make this interval occurs II is derivation to accountry, it is being, if possible, is existed. By a few law by a colorary, the first being, if possible, is contactly in private by any colorary the Many Secretia.—There see three forests of the intervention of fundamental of this case of Sept. Sec. 2019. Sec. 2019.

/0+; ten fifth up; the miner third to the dominant.
3+; two fifths down; the fourth to the enhancement.
3+; fourteen fifths down; approximation to the harmonic

This two flows speak for thermaleus. If we compare the λ is the deposition of the homesta reveals (γ : Δ_{λ} very find that it Mh short after according to the form of the speak of the λ is the first and that λ is the find that λ is the speak of the spe

to me WINDS IN STREET.

Bolt —The materal or harmerin's eventh on the declinear
unest cod he suspended, so as to farm a foreth with the forpasse.
For the harmonic events in definition p in f, is and coforms a found a common fist, approximately. Its white this states is
softened by white of control is declined in \$4.75 controlled.

Its harmonic covereds, 4: 7_1 whence saids of hermonic coverals of decisions is 6 one in 21: 16, or 60: 48. But mins of fourth to tools is 4: 6_1 or 6_2 del₁ whence this fourth differs from the harmonic exercish to dominate in the raths 61: 6_1 or by zeros.

than a comma.

Moje Simouth—There is only one farm of magar accounts
which can be used in hieronary, ret, Vi, this note is good by accountflow down; in former a major during it may be compassed in ackedy the form by preduces a good offert. These as exceeding the point further than 1. It is not by the form of the 1. It is not by the form of the 1. It is not by the form of the 1. It is not because it is not be a former of the 1. It is not because the second of the 1. It is not the second of the 1. It is not the second of the 1. It is not because the second of the 1. It is not because the second of the 1. It is not because the second of the 1. It is not because the second of the 1. It is not because the second of the 1. It is not because the second of the 1. It is not because the second of the 1. It is not because the second of the 1. It is not because the second of the 1. It is not the 1. It is not because the 1. It is not the 1. It is not because the 1. It is not the 1. It is not because the 1. It is not be

21. Naurora Scoresa

Second of the Key.—Two fifths up. The double from sizes not appear.

Mojor Third - Three fifths dawn, Mojor Third - Four fifths up.

Fairth — Dee fith down.
Fith — One fith up.
More fileth — Four fiths down.

Minor Disht — Jean 1800 down.

Magic Blath — Then 1800 as the group case of a double form.

If the Counts— Here we here the entry case of a double form.

It is set fills down, makes a fought to the subdominant, and

On ten 1800 as growers the approximation becomes as worth. This
approximation in very silven in the bast apparatument in the properties of the country of the country

iii the augulire system of perfect thirds, whole − 15000 is the departmer of four 600bs up, the departme of 50 is − 10 x 10000 m − 04000, which exceeds the departmer required (−41174) by 00000, or shout d₂ of a semitane. The rule about not represent the derivated theremose were in take a.

Major Scouth.—Fire fifths up.

In regalire systems the notation marks are commonly omitted.

But as the benecias security would thus be written at, they
must be introduced for this or say similar purpose.

As the writer has not ver but for the hands for study as

exemple of a negative system, he is not able to speak of fitnes with the same experience as of politics systems.

22. Negative or Dome or that foregreen or the Sease.

In Engelor Cyclical Systems, to find the number of sains m say interval in the code. Let a be the number of units in the

Then
$$c = 1 + 21 = 1 + \frac{r}{2}$$

 $\alpha x = \frac{n + 7r}{14}$

It is easy to see that a will always be integral, if the order one. For thee, 7(7n + r) = 90n + 7r, whome, meting out 42n, w. a. To be a modificate of 12. We see your dates were the parentering

In the entire of SI is no 5 in or 1 In the enters of 31, a = 2 c = -1

The following table gives the general expectations for positive and according problems, and the numbers for the systems of \$1 and

Internal	Essent Spilese	ef 68	Nigstandjotene
fills see	20-20	٠.	
(the tops)	30-6		2
		17	
		27	
nor South		26 20 49	10-11
		44	
	11:-1:		
The - r F to es	gallios systems cos.	of occurs,	politine quantities

CONCRRD OF RECULAR AND RESIDENCE CONTROLS STOTERS.

The theory which has been established permits us to calculate as decaylers and errors of concepts in the variety Begular and

There is snother countity which may be she conveniently taken nto consideration in all cases wis , the departure of 12 fifths of he system. We will sail this Δ_i putting $\Delta = 125$ where δ is the

We have then the following table of the character for the more experient excitons hitherto known. The value of the ordinary course (\$1) is \$2500. It is econorable with the

IS and the positive sprion of perfect thirds, the condition of which would be that the departure of 22 fifths — a comme.

Name or m	Cudate	Δ-12 ⁸ er 10 ⁶	Fina f-4166	Tried 1200st - 60	Error of Exemple Service Service (SETE-147
Perfect Fidille				- 561354	4334
Positive Person The					-9722
216		13333	- 96550	10627	9716
65	. 1	11462	- 96417	-60338	4642
T - in been nign	(mi			132616 w 48	00175+16
Mont Total Name		-41668	90376		- 10004

38				
Profest Public				
Positive Perfect Thords				
Mass Tone Sagetive)	100	Color	-ehe	
		-2		
10	-1	-5	-8	
54 Assumance of the Per	STILE OF	Впектно	s Amarico	007

Name or a Quiter Departure Benevium

90 Picture Statute.
This has been self-circle; Statested by the symmetrical serenorment of the noise of General Thompson's subaromain

responsest of the noise of General Thompson's enhancement copies, given in the writer's previous paper (p. 16).

Si APRICIATION OF THE PERSONNE OF STREET, APRICIATION OF THE CONTROL OF THE PRINCIPLY STREET, According to the crimicalism of the principle, the positions abought, in agridiery arrivers, by taken downwards as we accord to.

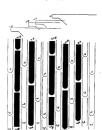
the series of fifther, for the departures thus obtained one negative But it is practically more convenient to use the positive force in Helt it is preciously more convenient to use the positive form in recording emission as well. We areal of this form in which shows as the 'reversed' form in contradiction to the form and in positive stretum, which is spoken of as the "direct" form.

19 A ' GENERALISED KEURARD' POR RESPECT STREET

metrical errangement," in the following manner. The octave is taken as it is, berjacotally; (in orderary keyboards the octave is horizontal line over the partitions of ea E. T. series where it eroson them all. The kore are placed at vertical and herpountal distances from the E. T. like corresponding to their departures, on the appropriate that the appropriate is positive. The Acnariare of 12 (files at corresponds to a horizontal dischargement These displacements are divided agas if a energ the filling to which respect to a to A in back and A in my and d with respect to at of a with respect to il, and so on. Although only 5 in, of each key ere than expend on a glan, we

the keys are all made to overlane à in. : and thus the inegrals

length of such key is 10 in. The accommuning figure (p. 100) shows a small portion of the keyboard, on a reduced node. The lave are each it in hyped, and their control are 4 in spart. There is thus 4 in, free between the adjacent surfaces of each pair of keys, and \$ in altogether the right hand, the first flavor has toward to between the affairing keys at ... 6 and under the everboaring a. The keys in the d)) are black—the rest white.



If the thirds such as a. No are made perfect, and the fifthe fat by 19244, a quantity which compen the ear, we have the system been mentured. Helmboltz rather a mistake in destriking it, (Die Lehre von den Tonempfindungen, Ed. 3, p. 405); be enppasse

The small enhancemic organ, relabited when this paper was read, contains a stop tuned according to the feat-marriaged system. The company of the 'generalised keyboard' is 3 orthway, General Thorogeno's arrows, it will be remembered, bad 40. Ma Ellis has pointed out to the writer, that Helmhulta del not coupley this system, stractly speaking, but a system of unequally just In reaction, norfactly social. But the arrow is not scorole to the car. The process in an follows The highest note in the series of \$60hrman be called , f. The right highest notes on the her board. are bound by cooked fifthe. At the really note in december, and have the check of d. de la then sometimes accounty to of perfect, bot this is once; adterwards all the notes are to sell on always rainfy the condition of making the fifthe sensibly perfect.

The action is that known to ongan-builders as "direct"-ite. the stop-shiles run possibil to the morement of the stee. front of the outranget. The setime is led force the hydrosed, he negate and tracker work, to a roller-board of four twee, which extends to a considerable depth back from the kerboard. The rows of nalidaway, sloper the two vides of the windchest, and thus every note is easily acceptable for regulation, and all the pallets can be got at with race. This form of arreagement is

of the kind with several stops. "This plan, the general feature of which were devised by the uniter, has been most obly carried and by Mo. Z. A. Jennings! "The log-board, the trackers were, and the roller system specially inside attention by their expeller severanceship.

20. James Source Searces and Today Ports.

The enhances copie contains an importance, she deviced by the writer, and immediated by the F. enauges. Stepped diagnoss place of metals were selected, an company few space than very staken; the power-less difficulty of meaning the taking of sand paper became the religion of consideration, and the convergence and very correct. The execution flowers in that expense have not were deviced. The execution flowers in that a cover from without. Thus the etopogra me one opportunity placed, the holy of its near excels to be maved again, and the

correlately perferred by means of the projecting serve

40. APRICATION OF THE NORATION TO THE BYSINESS OF \$5.

The natation introduced for positive spotene (paragraph 9) is encoyable of various accessory rules, according to be spotent in a standed to. It is expected to find yake of identification for possing from one principal direction of the octave to nanother in the creates of 51.

Spide...In the system of 53 the notation becomes subject to the following identification:...

If two notes in administrative windows (e.g., c and of)

to a situation at the change prompts and content that produces the content to end to the content to the content

division. The mode of westleadon in any case in the Schowing— Moding that the 1-8 this secretion is four male (scheme following Theorem III) we see that will follow rately whener [1] to a [1] when III] we see that will follow a pain, of —d is four units, seed [1] [4] [4] [5] [5] and its following in the second in the sec

* Organ-beilder (address at Mr. Fouler's, HT, Franceville Soud) Mr. Jessings has build at unlessey organ for the writer, and also the large or has many largestories.

or St.

The Endarmonia Harmonian.

The practical staffes on positive systems, which the writer has but the opportunity of ranking, have all been conducted with the necessary of a large harmonizer, with a very extensive operatural for keyboard, containing eighty from keys in every others, tented in accordance with the system of 55. Thus was also have for Marsings. It has now here completed

shoot but years. The armagement is as follows:—
The note the is taken as the first rote of the series, and
receives the characteristic negation 1. Then a is 4, and the
receives purposes on the assigned for the rules for the identif.

remaining numbers can be assigned by the runse for the interface, calcions in the system of Go given shows.

A number of notes at the top of the top-board are thus likewised with corresponding notes in the edge-cert principal divisions as the right at the bettern,—ag / m 6 m Ne 8. There

we then right to the northead region of the control of the control

the restriction of the company of th

The original object of this conceptures was, that the wind, clark being only Rike out, nextly or copie as juncture be relatitated, containing a different system of inering. The tree additional windshorts which were constructed very, however, necessivally symbols, and here never been replaced. The great practical interest of the application of the normal construction bepresentable hydrogen hands the works to hape this he copy that the generalized hydrogen hands the works to hape this he copy that they at some richer fame, to provide an additional wholebook for 42. Arracanse or the Strong or 118 to the 'Organization

The I-blike semitors in bern size units, and the I-blike semisors or times units. The copy time I-blike core is emission to time units. The copy time I-blike core is explored. Hence the note in the successive principal districts are charactery and and come, and the best-little-free he in the threate solutions. These was solven further invertigated, as a large control of the control of the best-little-free he is a beyond on the principal solventy replaced, which would be precised on the principal would be precisely visible, a principal of and is beyond to the precisely visible, gradually free mass insuch to the position of prefere coloring, probably free mass insuch to the position openion of prefere coloring.

45 Nonance on Macoure Stemes. As negative systems correspond, in the formation of their thirds to the ordinary many of makings (purgraph 7), the

months adopted for the propose of indicating position for the inflamental series of fifthe bounds to position griefler on the indicating of the bounds to position griefler on the contract of the contract of the contract of the 3-1 to gas and assemble can not be sufficient, within a service heart many, within the indication with the relation reader. These will, deveror, auxiliars to be constantly required. For any order of the contract of the same of the property of account obsequence. It errors before, thereboys, in recent the temporal, the months of the first order property and of contractations in the series of the first order property and of contractations in the series of the first order property and of contractations in the series of the first order property and of contractations in the series of the first order property and of contractations in the series of the first order property and of con-

In the application of the hydrocal to negative syrbina, as aberg always specified the higher on the honor, of the two takes between which theirs may be made; and it much be remembered that the higher on the bornel, is in this case, the lower is pitch, the state of the state of the state of the state of the pitch, and not provided as in positive specimes the three role, and not provided as in positive specimes.

APPLICATION OF THE REQUIRE SCIENCE OF PRESENT TREES.
 (MILES TONE STORM) TO THE "GENERALISED KETAGER."
 SHAIL Enlarmonia Organ—Negative Slop

Small Enhancements Organ—Negative Step

If the thirds such as one are made perfect, and the fifths
(1925) for a country of a country) fast we have the reconstruc-

system. The forms on keyboard of notice and checks augustive systems are different from those as posture systems. The scales are very may to play, and the checks shee. It was expected that this applicable may prove of pastical importance.

By the explorance of reversed symmetrical strongeness, we can use the notes beyinged as that for positive systems. Federating the scale of neumerical extrant to on the plan of the hydroceri, we can realize the mingro of the fregreing. He is the none as that of the Pethalments and with the critical of neuferical

ance as that of the Pythageness souls with the system of perfect fifth on the keyboard. The tense are all 2-50ks tons, and the continuous both 5-67ks resistones. The small onlessuonic organ exhibited to the Jameietten conteins, on the three borne times of the Arminal a second atom. the

tains, on this three lower tiers of its hyboard, a recommend stop, it pipes of which are travel to the above spites. It may be request as a great orizoname of the soil manufact temperament—which is any, the performs one everywhere produces the same relation any, the performs one everywhere produces the same relation and the best chords of the old manufact temperaments were acquired

 APPLICATION OF THE NUMBER'S STREET OF 22 TO THE "GENERALIST KNYCOME."
 The objection to the lost specificated corresponds (name-tone)

system 10, that a service weather system to assess of medination would compy the performer beyond the finite powerful of this may be recreased by artificizing for the mean-time explain. In Higgs-invariant system of II, the near-time explain, the Higgs-invariant system of II, the near-time system. The thirds record of long perfort, wend be 0.0012 along, or considerably less than the 100th of a resultance and the Highs 0.0411 fact, instant of 0.0017, difference so 10015, or about the 0.000 do I

The application of the principles of symmetrical transparent, forecased) is the number of the section of \$1\$ to usually declared from the table of the numbers of saids in the interests of all that system. The first bases of any scale centric bowd of the walk—the tree secultars such of these. He only nonzero to securately, that he lover sunders of the strete transp small always, and the layers reachers of the strete below, to only principal diverse of the colors, seconding in the distillation of a

. .

In was the writer's intention to here introduced at this point an easy as certain improved methods of tooing. These will beyond searchy on the employment of an extremely accurate from of materiorance, derived many years ago by Schelbery, for the "The fortuber necessary are substitled to the necessary fielded all."

·

counting of heats. On account perity of the difficulty experienced in griffing the neutronous constructed, and also of the extent of the expert generally, it is preferred to treat it at some fatters flow in

support presenting, it is presented to treat it is seen instant than it is expected contracted that it is expected contracted that is which it is uplete of \$3 was instandly passed on the most in which it is uplete of \$3 was instandly passed on the \$3.5 minutes of \$3 was instantly in the \$3.5 minutes of \$3 was instant to the \$1.5 minutes of \$3 was instant to the \$3.5 minutes of \$3 was instantly of the \$3.5 minutes of \$3 was in the \$3 w

the was obtained by Continuing service Pathennesses State in the continuing the Mahrongh them support with the continuing continuing the cont

the approximation of the second of the secon

as an extend one)...

In the first place the occasing of the bests by the motels proved on extremely foundations and realiser transmits method. This must be replaced by the improved meteorises.

Secondly, as the reade were transf on the matches, when they extend to be removed, and other due to their search in the hormosium.

they nationwest main attentions and although the main on the modelaw was posity good, it was no longer entitions in them the rads was forced process, of a same deficient entrop, was therefore shopped, by which the dependence on the constituy was therefore although the contraction of the factor practices; and, before

suppose, by when one oppositions on the centering was intrinsical. This was also form careful and on the turing machine, and, before explaining the process, it will be well abortly to describe the opposition of the machine, as for an the revok see conserved. The read weedstone constitut of a low, which recover the wind from the believes through on spectron closely by a wite merculair.

Seem resident. On the bary of the bar the first to the first the desiration of the seem of

and associfizing it was a colorate with early an the matchine. One point without much is sould being maning to their is, the pitch of reads warm way a considerably with the triength of wellter and the state of the state of the state of the state of the interest of the state of the state of the state of the state to the state of the state of the state of the state of the technique principle to the new which as send in a state of the state of the state of the state of the state state of the profess. The In the system of 16 they dish are notice to be profess. The

tions, benefits, an protecting last, it is usually from a minchest, or protecting last, it is usually from a minchest opposite floritation and the difference in some most with the varieties roles; and it was by the heatest those depotent difference interest last be fluided women, the limit has of the heatest protecting the last better floritation of the last in the latter one case fall the shade of these in the latter me one fall the last bank of these in the latter me one fall the latter of the latter

out with once on the tenengoneckino; but when it was repeated on the harmonium, it was found that the difference tones were so faint so only to be heard with difficulty, no doubt swing to the remaind for advances on such cases. With the class of some employed in the small cohormous erves the difference tones are etroog, and this method might be expected to be engosedul;-

Time free	Fourth or Ethio,	Third Flot.	Books per mires
V. 10	V6. 18	V4 P	
VA 23	10 H	11/2/ 10	**
			*
0.00	0.11 de	124.00	40

We thre return in a circle to the standard or even with We this return to a circle to the standard or even without happenger (Area saw anger, so that it seem no nowhere programme In fact, this is a less difficult measure than better the innernes of the tirror and the others moment of the difference taxes are of rofficient elements to be board at all. We then proceed to fill up

HT OF BOSES STORE OF EACH OWNER. Touche or Eithe

1,74	7,5 48	. 59.77	4,9.50	44.532	Selebele
V2.0	20.00	V. 3	V- 8	C 21.	17 KING
120 m	100 H	16.45	100	VAL 10	
200 H	100.00	322	1 '=	100	
11011	11/4 15	11/4 10	11199.01	111/11	
20.20	200	2.5	25		
70,00	E 20	20	4,44	223	

This process was some through many times on the hermanican after all thorode were in position. The alternations that answared

at first to take place in the restor in a few days, were complicately, and it was not be cones time that if was personnel that if was the socious that was no finally, and not the reside, could restricted the socious that was no finally, and not the reside, could restricted the socious offices districted to some residency, the needs have been the nature of these districted are revisited, the needs have been than a socious of the needs of the needs to be not the natural place along the socious final that the needs of the

47. The toward of the principal seguitor system (researches researches) vices required systems or period train, a sincendra vices are required systems or period train, a sincendra of a temporal temporamental less specification of all temporal temporamental less specification of the systems of year stored to temporal year specification is a sincendrated by a period to their it is not the temporal tempor

& Elictur Approximations.

For an ostilian of the theory of suclique systems, and of cerisian systems of higher ardam, which are not of meant president interest, reference to made to the writer's proper or 'Yeorperament,' in the autrent velocus of the Proceedings of the Rayal disoisty.

46. Corners Scoonwass, Assaurerrer.

This form of higher approximation is of some interest, as admining of a very obser representation of the occurring relations between perfect of this and thirds—also nor introducting a farm of symmetrical arrangement, which, although the most complete,

Let a suffice of B. T. anisot has placed, in order of the each, a significant control of the case, a significant control of the representation of the activation of the proposition of the page (M. and other B. T. excite he places down on the backwards appear to the case of the page (M. and other B. T. excite he places down on the backwards of the significant commenced type of the significant control of the significant of the significant control of the significant of the significant

.

law. If we take the a which is seven steps below the E. T. now containing a, instead of that which is eight steps below, we obtain a third the error of which is little many than '0000's, or one han-

Departure of sores fifths = 13086 00004 1524 = 13086 28034

2014 = 1006 2003 ceres 00001 20000

carrying the calculation to ben places. By ediporing the exact value given to the difference between the rows, in a possible to get the approximation move sent, but this is of no autorial intenset. To wreall be possible, if desired, its construct is keyboard for such a system, the date of the figure of paragonals? It shall prefetch to your concentratory: It would then be persible to play fifthe and lands periods to the share of paragonals? It shall prefetch to the share degree of approximations.

SO, Application of Business Created Stoties to Company Scientistics Assertionary

(The matter of the following section was suggested by the discussion of the properties of the system of 412, the superstance of which was pointed out by Captain J. Herechel, N.S.S., to Nr. A. J. Elin, P.B.S., and by birs to the writer 1

It is side that any linguist Lydinal System may be applicable to a common state of the properties of the settlery social force or common state of the settlery social forcepromons, or a man to densitie by 12. For the ensures of a complete symmetrical arrangement is, that it may be regarded as made up of a number of R. T. system, each of within its represented by a horizontal core of the

To find a cyclical system which shall powers in all its parts the properties of the occupies symmetrical eventpowers above discribed — The departure of the period fifth may be written yelgenand the system cought crast have fifth abouty corresponding

with the of despective. He to the other of the system points are a grant on the state of the system points and the same of the system of the same of

ther may be much distincted by making the 60th more worker. approximation applicable to complete argumetrical arrangements. m evidently 240, since 290 x 15 = 36. Then n = 240 x 51 15 The departure of the fifth is price Recor - S is the seventh place of decimals, and erger of the third as a unit to the 19th

An energic of more written for positive systems is appealed,

as well as a short spelle modulation in the system of 55 (pp. 115small subsequents grows. The principal points in the harmony of these systems which have struck the writer occur in the currents. It is to be specially noticed how certain force of suspension have to be avoided-partly because they produce the down the keybased. The result of the writer's venetical experience is, distractly that there are many cassages in ordinary propertied. The character of music adjusted for those systems passagrees to attempt sapid masse, for the recollence of the harmonics record by based. The rates term centers in terms Some examples of the appointability of the positive systems

for ordinary much may be how instanced --(1) The opening here of the first probable of Buch's 46. The shis on the ingraneism. It does not stelled the car much with (2) The example of cretical modulation at page 156, the bareous of which is extended from a passage in the second

The effect of this is not but when one is accomposed to it :



The two o's, to which attention is here called by asterials Restrate a different of constant occurrence in the advantation of ordinary many to these systems. The g is here required to make a fourth to the depressed second of the key ('vi'), and also a lifth to the because. But the first condition receives the note by the second or and it is recognible to avoid the arror of a convenexpectage. It may be said that the first a is only a unsularnance darks through everything, even on the level emphasized reserver union. Although the account a scarce to the writer to be

expective topes of the group reader such effects less prominent. (4.) The third phrase of a well-known chang :-\$'... | | | | | | | | | |

To keep in the key of f, the p should full to by at the second shoul; but this direct december the superaded note would round bull-organizatly, the whole pitch is select a course at the comman at each repetition. The resources of the system of 50 adject of the performance of the reputitions in this manner, had

On the group it might be possible to take the last shood written above 'q = 'd - 'q = 57, which would get mit of the difficulty. On the harmonium, however, this drop from the manu-In the expected of most welltry for the positive ersteen. It

empty as first and sharps are in tedestry mosts. The sign adopted for neutralizing them so a small circle (c)), which is realized to the orderer untited. If the central vitch had to be raised or decreased by a comme, the elevation or demonstra mark would be written large over the beginning of

=/= =V=

Sovered points to the hormony are regarded as experimental For molesies, in the inversion of the dampant screents with the assemble has on the harmonium an odd effect, although, when the short is dwell on, it is brazel to be decidedly amonthing than

- ---



where functions in θ , the suspension is inclinically, as it recalls to the thic $\Omega(1)$ d. $\sim N_c$. In the 1st the ordinary network of the dominant V_0 is an applyed in the ham restered of the hormonic arrestly N_c on a to event the sun rises of of the hormonic arrestly as the ordinary in the surface $N_c = 0$. The interest have all effect in which we have key, as theleen and their in questify notated in the lates.

But 18—17b use of the books of first note in the hore in pre-

For The war of the body as first antic in the bate is provided by the presence of the harmonic reverble en the designated (principle) $\delta P_{\rm c}$, in tagging change is placing in the effect when the problems of the minimum of the problems of the first in administra to repeate the two forces of the disks of the problems of the probl

00 - - - - - 10 100

the hormony reministing the same. We have, however, serious et our of as the Hth be, and It is not possible to empired it animal varieties we relies the "An to at It has not a good office where a gassage in repeated as here, if the representation is in a slightly different pole. This supersum is therefore expended.

The 97.—This is a very observant of the transmission of the state of demandated ignores before the Co. V., we a hormonic of the contract of the state of definition of demandating their hold-proceed depende, we as the most of the state of the stat

secocit.

It Course Scans
The following is no enumple of a novel effect which is estampth in confirm regions. If the short of the harmonic equations

arrent he notation, this everyth tay is made to rise and his again through two or many engine common. The sight to trascoutsmed case is disagranded at first, but the weller has become so further with their small intervent, that he losses there are being many that the same that intervent is the losses there are being man and the state sole put not of times. There are be the closely that the recognition of extractable is a quantum of states. Using just as the recognition of sections was, in the only interpretaining the state of the labeling present, as exceeded in the interpretal temperature.



53. Senne or Marca Terras.

The cloud to which attention is called consists of two perfect thirds and the octars. The third 'ye' — c has a depositor distribute and the octars. The third 'ye' — c has a depositor distribute the constant of the constant of the constant of the original transfer of the constant of the constant of the con-

fixed that statedards of "ytthing lives are, when we are some or common." We have the dudies, if we prefer it, of accessing the cheef with two discontinuous lives, that we will be a second to the second lives are confidently discontinuous things, the writer positive the first corresponded. This is not there of their many than the property of the property of the property when the property of the property when it is not the property when it is a manifest of the property when it is not the property when it is not the property when it is not all the property when it is not the property when it is not all the property when it is not the property when it is not all the property are not all the property are not all the property and the property are not all the prop

calarmonic organ, at the meeting of the Accountion.

54, Mass Yora Sterna.

It has been pointed out, that the generalized hydrocyladmin of the control of negative systems by brone of remarkwhite desploys. Not only in the fingering very simple, but the
shares and But of erforary rance forming in effection, the later-

precision of which is clear, the figure prior up for the sharp and covers for the first, Millings this measure priors, on its endteres for the first Millings this measure priors to first with a few prior of the first measure prior for the state of the first measure for the first measure for the content of the first measure for the first prior of the first measure for angular form in of course, the original that instrument in angular form in of course, the original that instrument is supplied to the first measure for the first prior prior the first measure for the first measure for the first measure prior the sample of the first measure for the first in rate ordered for preferences ever the first possible of the balant of linear with the first measure for the first prior the lates of linear the first measure for the first prior the lates of linear the first measure for the first prior the first prior that the first measure for the first prior the first prior that the first measure for the first prior the prior that the first measure for the first prior that prior the supply for the prior advantage of the first prior that prior the first prior that the first prior that the first prior that prior the first prior that the first pr

Counces

In the foregroup communication the reference has been made to give a surpleant queened theory of the driving of the orders, to previde a system of notation by which the notes of different systems can be expected for predictal purposes, and in order, the northernoist problem for keyel unstreament. It may be now addressed than there is not large of unstreament. It may be now addressed than there is not large whatever, everyle study, recovery to conduct copying its relation a giventum community. Any system about

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ELIMPIA FOR SERVING OF APPROXIMATE PROPER FATER, WITH A COMPANI OF TRUSH OCCURS.

Erdiner i inc

go so disprinte (1.11) softeen de dediconstaté



Harmonia rases more flore A to 10 or two Penning



The Chartener said it was extremely difficult even for expects.

to follow a paper of this kind when reed, but when printed in the Transactions of the Society, which were in solive preparation, it would no doubt be persond with great interest. There was not much time left for discussion, but if may member wished to not a question he was only sure Mr. Restroyed world be

Mr. A. J. Elain, F.B.S., F.S.A., said he should him to read the new man which Mr. Boundarie and reserved to an expressing 'The spackness of a continuation of two tones denseals, then, in wonder of heats workered in a second. On suchness the the mann of this dependence we observe that as below remarked eafficiently near in the scale to set the same electio expendance of the auditory never in sympathetic vibration at the same time. salant of their heats being smaller felt. Then with record to the opportment with Herr Joschen, he care; 'I was fortgrate enough to have an apportunity of making similer observations, width examity with the g of a o of my instruments. If then requested him is play the unite, and fine-relatively be bud pipeling the third or earth. I give the corresponding rate on the harrowing the property of the state is we empty deference that this destinguished resistion mod the depressed δ_i and not the other, as the resist that the G_i and the first i_i , and i_i is i_i , and i_i , then i_i is the state of i_i , and the i_i is i_i , and i_i , and i_i is i_i , and i_i in i_i , and i_i is i_i .

With regard to the melodic feeling of ploying, he might my sumbers with eagel secretage and fractions of them), were so conducted that the pilch was determined by a merhanical process, tions. The performers were quite universe of what was being done, and should an aread ; has the rough was that in playing burroonies they also so rood the root intension the perfect third and fifth; but in playing suctories they used the intension, which was supposed to be Pythagurean; at any rate they played the thirds and sixths, and especially the secretals, charper thus in equal temperatures, the arrestly being accretions a commanharner. He played the same interval twee ables, that their tithis and octover were very frequently changing. In playing the name scale, on the other hand, the miner third and the miner fifth were taken finiter then they would be even on the Pethagorean method. It was evident, therefore that the performer had not made up of brightening by taking the untervals sharper, and dailing by taking then fatter; but that when they played harmonies their Section was to pel conscenses

Mr. Baccarie nedwated that the practical results engit for by those investigations was to smare more perfect tening of messagal instruments, rether than to have any effect on the conpelline of genie.

Mr. Benamerr said bis view most decidally was, that there

me areasoners and his view most decidably was, that there was a new material for componers to work with.

Mr. McXatarr asked if it were correct to any that consing more could not be performed in part intensities—viewd or in-dragantal?

Mr. Densequer still much of it could not. No case could secreta these small interests with accuracy by the wine; they could only be annalmed by an interessent. The roles we call very readily adopt wind to the instrumental accompanisate. Mr. Outstrook thought the harmonings (which Mr. Romanuse

Mr. Contained the agent the fractamenter (which Mr. Bonnegert and referred to an time unstreament by which he had made some of his experimental) was not to be. Gregoridal agon for soything whatever, it is seemed serve to give a chard in to these to, and agree of the contained o

× 1

Mr. Becouger seid his lorgogiess had stool perfectly to tree for two years. The made were at least twenty from an tried second to give out harmonics more freely than any other

instrument. If He Bennonci's was different to that respect, he

harmonium. The tarritie of an harmonium was for more nous. rate than that of organ-paper, you could have any quantity of the latter from an harmonium, but you sould not reverse the

more This fact made it as subsalls as a more of research Bonzarust's hormonium, and certainly some of the effects were Harriented in a passage commercing the 'States Mater' of Paleswas certainly absorbler different—unch mare delicate, alctal, that the simples there unrepared by after in what is no dealer. which remicises seemed moner to have been satisfied, was he understood Mr. Rossavuet, this never received about our times the number of layer and your of an ordinary endroment.

were kideous a some of the bureacous sevenths, for inclusion were extremely disperveable-Mr. Boarsquit said he had always found those nates dangerecale was to like there was to listen to the chards. He naver

The Congress - Then comes the question, what is a good our. and who has it ? Mr. Boesnquer said he had frequent experience of all surts of chards, and elema picked out the effects which he fried hest himthe deporture from the namel value of the nates. They did not through of the consciousnes at all - the constitue with those fating, and Mr. Crescops said the sheed of the sixth on Ab. at the

Mr. Boursquir and that was At rosed. B was a carious

to certain interests. He said the tenes were he from here of twelve perfect fifths, producing a complete encousion; and a Chinesa prince gave the lengths of a series of organ-pipes,

producing theoretically perfect equal temperatures.

The Cases as and it was remarkable that these remove who were generally considered the meet highly gifted as compowers had all here accepted to the same Birst of taxing, and John Sobustion Buch took the treakle to write, for what was ekvisually the newal temperatures. Some minds arounded and flower in the different layer. He doubt the necessary content was the controller wrong, but it was one which ratiofied Mount. Bestleren as long

the position that the ordinary scale was wrong! No doubt it mary then by did biworld, as an amount. His contention, hownot been at all developed. Nothing was known, doorethealty, of the different replace of distribute the setting and he considered such bud hid him to make concernments. He believed that your a new quite a secondary consideration -

The Countries wild be might venture to repeat a remark he had made on the previous common, that if Herr Josebim played in perfect intention, theoretically, how could be play with a passa, which was of some a region trace of secondary.

while who is received by would, of corres, also his misconditioner as to be seen and the first the second to be seen as the first the second to be seen that the second to be seen as t

The Common senseted that one of the thooresteness of perfect intensities would be, that you would continuely leave of on a different inyrest to that on which you begon, so that do not not of a distinct to this for making out of team must be old test of shallow in this for marine out of team must be

on a different largests to that on which you began, so that the add test of slighing in gitch for singing out of tens must be returnly folloctors:

Mr. Ellis said that Smith, in his "Harmonion," quoted the case of a mock who had rectored to that the chor must have

gain minty command sits or sum y not maggint, secretors, white some was an investmentary temperatures used by singers, which he believed to be the control, flexible relabilities if it as a perspection, i that on preferences by visibilities or exigence, these was excluded the way of an accessor belt of any kind, but there was a constant percent of the way of an accessor which all difficulties were not over a constant process of adirectional by which all difficulties were not over

The Challents: Art—not seizure.
The proceedings were concluded by a vote of thanks to
Mr. Bossaquat.

....

Jens T. 187a

B. H. M. BOSANQUET, Esq., M.A., F.B.A.S., F.G.S., Finances or Sc. Jose's Criscose, Oscov., 16 1881 China.

ILLUSTRATIONS OF JUST AND THEIR PRINC INTO-

By Augustes Jose Ride, Roy, RA., F.R.S., F.S.A.

Mr. Riggs commenced as follows :-- By introofice is here mount a adoption of regular angula of certain degrees of retch reads. according to some fixed principle. It is called but when thes. principle is to make the opporanges as perfect as mostle. It is called tempered, when the degrees of rast intension ere slightly chord, with a view of undertaily facilitating performance on the mony, with the selection of injuring the communities as Bulls as may be competible with that facilitation. That is to see, took tion prefers manipulation to harmony. To understand this disdepend. This requires a Examinings of the nature of motion or and itself such as has been reflected and clearly explained within the last therieve years, by Professor Hobackella. But the reealts mer be readily felt and expressabel by emply hearing a few should be rendering a service to the Musical Association if I should a few of the abrassians arrantments to a marrier which is the chief frame of houseout. To show on Tabell subsequent ray (Businetines together, and refer these who wish to rate falls into the unbined to my translation of Penfessor Helmholte's wards

on the Standbury of Tane?

He Bills then proceeded to show situate tones, by the resonance of pers of air to train further, and theirstand the furty post for efficient instantion, or the few of better—markey; their imple tones fraging less than a certain interval with such other will been, and thin them best will operation a maximum freezences at four one-third to first-results of their interval. According to the process of their conduction of their conduction of their conductions of their conductions.

B.D.) and the interval of constrome discussment in the transfered constraints of the constraint of the constraints of the constraints of the constraint of the constraints of the constr

The third great law affecting intocratics, or the law of composition of moment towns, is that which farme the great facture of Professor Heighborth control—cancely. That all massical tames are board as if they were produced by a series of sample town having the relative number of relative 1, 2, 3, 4c., of yeary nations degrees of londerse, sweaded togetteen, in the document on 10 to the originess show the relations

which is the object when p [10] is a chapter from the minimum of the support of the primary has the chapter of the primary primary for the primary composing in the state of the half of the object. The land of the chapter of the half of the chapter of the half of the chapter of the half of the chapter of the primary and the primary for the primary of the primary for the primary of the primary

terms. I make ever notice, with values for company in our back, some strongly with S 3 and 9 i. 10. The tones continued in just introantina have elevery such relative pitches as those described. In These notice were published by Produces Moore in pagel 1474. In May 1874 in attend that very similar man an applie of being the back of neutral notice are revision while. But the interest of notice is the interest notice, and there maked M.B., pattern row, modifies started against term. The point may used from notificate in sightlying, but the flagment.

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the six best forms of the major and three best forms of the minor triad of A seconding to Helmholta, manning.

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*The lineary of insponential ray lie confloated from a resistance. The Grant I instantion was private for analysis, and large their till partially, and large their till partially, and large their till lie threst were discovered. Down to the interest matrix that Grant for their content of exceptibility. Grade the content of their content of thei

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This was not incorrectly study, In representing that the resident line would probable by the concurrence of two high tensions the would probable by the concurrence of two high tensions that articles from the difference in the number of Witsellium of the two capter count. As he as an advanced in our properties of by the competition of the head tensions are supported by the configuration of the const were supported by produced by 10% and 40% without me, the construction of the configuration of the configuration of the contraction of the configuration of the configuration of the contraction of the configuration of the configuration of the contraction of the contraction of the configuration of the contraction of the contracti

also then by Professor Beliakolts, on whose setherity his remarks were based.

The Character said the question of Mr. Ambrose Stells was incertostably assured by the fact that the resultant low course control about the resultant for course could be a fact that the resultant low course could be a fact that the resultant low course could be a fact that the resultant low course of the course of the resultant cours

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Electrations of Just and Tempored Integration

The spacetr comma was very hard as the fifths, and if you struck a single triad high up in the code, the bents were heard were sharply and explanantly, so that, although the third was perfact the morn-tone had many franchisomers.

show how experiments might be made, so as to verify the statements of Heltabolts. His harmonium was tuned by making areas major should perfect, and by its help almost every experiment needed aught be tried. Ordinory train forks, and relinary are tuned with a little water, erred to produce the simple tones, and to hear their beats as distinguished from the others. Those who wished really to study Helmholta's book would find it necessary to have samething to guide their the right through the wrong, it was very difficult for the manyriky of people, who mover harroand to knys board the right. A note of thanks was then person to Mr. Hills, which con-

PROCEEDINGS

MUSICAL ASSOCIATION

POR THE INVESTMENTS AND

MENCHANT OF SUBMICES CONNECTED WITH THE

ART AND SCIENCE OF MINES

SECOND SESSION 1875-76

LONDON ST MINSEL CENTERL & CO., SO NEW BOND STREET, W.



Is Decembers or Four Sector, 1974-75.

Dogs 83, inner 83, 62, and 64, for Mr. Duncar and Fact. Denkin.

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" S. " S. " Station and distract

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CONTENTS

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"On some Zones or the Esteuro Matters or Waters an One man Score". By Trobwood W. M. Moor
'Or Dearmann or Museum Press' By Dr. W. H. Steam, F.E.:

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Ty Long Harmon, M.A. ESA.

'Or was Manual Incommun our Procession or the same file.

Co. Name Manager Description and Processing or the arts for Canada Wanastonia, E.R.S. By Probant Winnise Street Anna. E.R.S.

Annue, F.R.S.

On Marcol Science or Reaction to text Voice at a Marcol Surveyor, No. Lancet Edward, No. F.R.O.S. Edw.

RILES AND REQULATIONS

Passed at Two Special General Meetings of the Members, held at 27 Harley Street, W., on Followers 7 and April 3, 1870.

ORDERS AND CONSTITUTORS. Their Association is called the Manifold Association, and in forested

for the investigation and discussion of subjects encounted with the Art, Solveno, and History of Make; a six in intended to be retain as it is equal-tonic to existing Learned Southers. In the soil intended to be retain as it is equal-tonic to existing Learned Southers. In soil intended that the Assessment shall give occurring on the continuous states of the continuous

Manners. The Association shall consist of practical and theory

statistics, as well as those whose reasoning have been directed in the edition of accurate, the history of the art, or other historia shiperia.

Any person derivate of being scimitted into the Association must be proposed by two members.

Excelors will this place by halled of the members present.

Elections will take place by ballot of the members present et any of the ordinary medium, and one edwere vote in four shall existed.

No newly-elected member shall be entitled to attend the meetings until the suggest subscripton by used.

Special

The annual subscription to the Association is one gallers, which shall become due on the first of Norember in each year. Shaped precibers desire to withdraw from the Association, they shauld give notice to the Hon. See on or before the Slat of October.

Meanw

An ordinary marting shell be hold on the first Marshy in every models, from Nevember to June inclusive, et J EM, when, after the dispatch of ordinary knoiners, Popers will be read and

An accord peaced meeting of members only shall be held at 4 × x, on the hat Menday in October, to receive and deliberate on the Becort of the Connell, and to elect the Council and

effices for the careing yeer.

Special general meetings may be examoued whenever the
Conseil may consider it necessary and they shall be at all tense
bound to do so on receiving a requisition in writing from five
nearbors, specifying the nature of the bustness to be transmissed.

As least one work's nation of each special meeting clast he given by discalar to every member, and ion members proved at any general meeting shall consider a quorum.

Every member shall have the privilege of introducing one

visitor at the ordinary meetings on writing the mane in a book possible for that purpose, or sending a writen order.

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Papers proposed to be read at the meetings may treat of any subject connected with the Art, Stanon, or History of Masin, Accession, and other bladford subjects Papers will be received from or through any member of the

Association.

Experiments and performances may be introduced, when Impie to the distribution of the Paper read

All communications read will become the accident the gra-

All communications and will become themselvels the property of the Association (cales there shall have been some precious arrangements to the contrary), and the Council may pailable the name in any way and at any time they may diskel proper.

Rene

A Report of the Proceedings of the Association, including the Pepers send as sheltereds of the stran, and sheltereds of the Discussions, shall be protected and flattriplated to the sensibers as soon as possible effor the end of etch sension. This Bapart will be sensoned only object by the Henomy

Corners was Conserve

The management of the effects of the Association shall be

vested in a Cosmod, to be elected by ballot at the general coordings

and ten collisary members of the Association. The President, Vice-Presidents, Anditors, and five co-lineary numbers of the Countil shall return every year, but shall be

aburble for melection At the arreal ownersh musting in October, the Cornell whom they propose for the officer of President, Vice-Presidents. and ardinary members of Connell for the enoughy year. A copy

To volice, such marrier may areas now saves or same from the ballotine hat, and may substitute the name or names of any other person or persons where he organizers chattle for each remotive office ; but the number of norses on the list, after such ensure or substitution, must not encod the number to be elected to the respecting officer as above respected. These lists which do not accord with these directions shall be rejected

The Chairman of the meeting shall cause the halloting unners. to the reaction the rural of and grantestion and shall then destroy the halotting sensors. Auditors shall be assuringed at the sengel general meeting by the members, and the statement of accounts shall be sent by the Transvers to the Antitiors, and be to indee of the presents of the Association, and to present their report is accordance therewith The Council and officers shall meet so often as the harizon of

the Association may require, and stovery mosting three numbers of Council shall constitute a quorum.

Represent on Asymptons of Read and Restrations.

No rules and regulations can be exacted, altered, or reconded, except at a special meeting of members summoned for the express purpose, the summons etaing distinctly and fully the metter in he broards under combination.

Musical Association

OUNTROTTED WITH THE AND RESOURCE OF SULVEY OUNTROTTED WITH THE AND RELEASE OF MUSIC.

FOUNDED MAY 29, 1974.

The Benj Me Damparon A. Dona Constant, Bank, M.A., Hen, Don Gaser,
Dod Mon, Gaire, Guan, (Hondow)
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"Pearlinmant" Armers H. D., Eng. M.A.
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TREASURER. S. America Courresco, Reg. 50 New York Stand, W.

HONORADY SECRITARY Cranics E. Brance, Etc., 26 Euler Stool, W.

Dall, Berg, Esq.
Sandrice Streety Clarks, Do.,
Sandrice Streety, Esq., Sandrice, Shore
College.
Sandri, Alice Prisons, Esq.
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Seconda J. S. K., J. Sargh,
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Factorian, Coglisian Equ., 22.A.
Francis, F. C. Man
January, Berg, E. M.
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G. G., Jan, M. G., Jan, M.
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Bare, Lad Sing.

Barton, Devy, Eq.

Sadell, N. A., Sing.

Jackell, N. A., Sing.

Johnson, Charles, E., Eng., Rev. Nov.,
And. 20. Collin Ener. (See,
Bergers, Mr. Revisers)

Worker, N. Rever, S. P. S.,

Worker, N. Rever, S. C.,

Water, M. Rever, S. C.,

Water, M. Rever, Soy, M. S.

(pottersode, William, Tag. N.A. tob. Greature Decision LL.D., F.R.L. (Flor-Problem) Sewmenners, Mar Agent

REPORT

OF THE COMMITTEE.

Read by the Boursery Security, CRARKE K. BALKER, Eq., of First Harding of the Second Source, Neuroster 1, 1879.

The period has arrived when it becomes the duty of your Own-

salles is present to you thin then Annual Royers, in contention with that of your Browners, whose chances will give you believed as a to the satural fascolar positions of the Annual Foundation of Proceedings, Annual Foundation of Proceedings and Proceedings

Note-thereoffing the assuringly indoorwards circumstances that the Mindal Anodolium was founded us like as the 20th May 1874, that is was only on the 6th of Angrest 6th as smooth set in readeral all permanent thing, that the errangements for the first sensits then consensed, and that between that data of the first sensity mosting half to November, when geniral had informed, when must persons were about them for the state of the st

were elected. The strength of the Association et the opening recessed is supposed to be 175 members. Your Committee here to displace the death of three distinguished recorders: Mr. Richard Limner (the lets presult of St. Michael's, Cornbill, and Hon. Sec. of the College of Organists), Mr. J. Henry Grindesh, a butly Sir Charles Wheststone, F.B.S. Candidates for membership are seeking admission, and it is believed that as the objects of the Association become more widely known, epphension for mandarable will be excube increased. Eight manifoly meetings have been held at 27 Harley Street, on the first Monday of overv mostly, from November 1876 to Jane 1875. Papers have been read and chroman at each marrier.

Your Committee desired to afford the members an opportunity to meet for conversation, and appointed the evening of Manday, Jana 28, with that year. Mandam were invited to contribute objects of interest with rolation to masks, such se rare masks hoeks, practical entographs and manuscripts, printed music, end. analegt prayicel instruments. Some members resconded to the invitation of the Committee, but not in sufficient numbers to restify them in again recommending a Consequence To make the Masseal Association a metal and a permanent configures, it is empoded that the paraborachoil take a special

interest in it, and exert themselves to that and, by bringing it under the notice of municipa, both professional and non-professional, who reight become sacful recobers.

SESSIONAL ARRANGEMENTS

FOR 1876-74.

Picel Monthly-Manday, November 1, 1970.

Paper by Cranzas Kanzentrus Salaman, Hop, Han. Man.
Acad. S. Coetha, Renn., 'On Masson' Criscians'

Acad S. Cortha, Reme, 'On Masseal Criterion.'

Second Methan-Misuday, December 6, 1875.

cond Mesther, Minckey, December 6, 1875.
Peper by William Polit, Eq., V.-P.B.S., Mus. Doc. Guon.
On the Graphic Method of Representing Musical Inter-

On the Graphic Method of Depresenting Musical Letervals. With Districtions of the Construction of the Masseal Scale. The Construction of the Third Matthys—Mandey, January 3, 1870.

Paper by the Box for Parentage Gonz Generacy, Bart, M.A., Mon. Doc. Owner, Professor of the University of Oxford, Provident of the Association; *Considerations on the Ha-

tory of Ecolesiasteal Mone of Western Europe

Foods Marting—Monday, February 7, 167b

Pager by Viscou at Portuger, Eq., On Kettledrome.

Paper by Professor W. H. Minn, of King's College, 'On Some Funts in the Breetend Method of Writing as Oreheated Score.'

Pijth Morton - Monday, March 6, 1876. Paper by Dr. W. H. Stone, F.H.C.P., M.A., 'On Standards of Monday 1986.'

of Mexical Pitch '
Shith Mexico-Monday, April 8, 1876.

Paper by Leed Ratason, M.A., F.H.S., 'On one Proception of the Direction of a Source of Sound' Screeth Mediup...-Monday, May 1, 1894.

Paper by Professor Window Occurs Atoms, F.R.S., 'On the Musical Investions and Discoveries of the late für Charles Wheatstone, F.B.S.' an .

Biple Moving—Munday, June 5, 1970.

Paper by Lemma Berwers, Nog., P.R.C S. Milin., Han. Sur-

geen ned Annel Surgeon to the Reyal Society of Marinian. Surgeon to Her Mejosty's Railan Opera, &c., 'On Medical Susmon in Helation to the Yolon as a Marinal Enformed.'

The Authors of the respective Papers are alone responsible for the opinious expressed in them, so well as for the correctness of the illustrations.

Die WILLIAM POLIS, Mos. Doc. Occur. V.-P.R.S. or can Court.

OV WESSELLE CRITICISM

By CRAPAN KENNEYTTE STRANKE, Req., Hen. Mem. Acad B. Crettis, Rome.

Minutes, orbition is a soligist which, I are of applicate, may be consigned and discussed with desirating by the anomalous of the Minutes Association, is in shall which may be brought delicate agreed to broad capes. The strangelver by which it is non-nonded may be impregnated with explaints marker; left I am nonabled may be impregnated with explaints marker; left I am nonable may be impregnated with explaints marker; left I am not dismayed from pressing the impriry I have proposed to say, and. With the native base of good fulfit and good impact, I lie for what the greated without any appreliaments.

of stages.

Hagueffing marks from an elevated point of view, I place before use a high standard of murried militation. If it cannot be reached, the attempt to service at it may possibly had to the im-

provenancy of must of its solital features.

Moving and history evidence is subject to the same robe, and should be governed by the like prophysics. The homology of must be remained by the prophysics and performance. The critical of must need to earlier for earlier to the problem of the prophysics and performance. The critical of must need to earlier for the critical of the problem that the problem of the pr

Annual criticum engages to discusse of many writers of antiquity feature to the industrial organization manifold listery. In Platacol's * 'rep: personic,' written about 1,000 years ago, I find the following specimen of excitent mental efficient: * On New constant by I II Small (1922).

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By the nationals this set, with every others was complying in the species purposes, but his moderne, seeing to value these qualities to which the great excellence control, here in this room of many purposes and pulse speciations in facilities and finited onlysis. It is this which I while, we set their look of the Commonwealth, quadrants, the which I while, we have the should peak the special position of the commonwealth, quadrants, and the state of the control of the

and inferred to its than of the thealth."

Anticommun., in the book untilled Promissions Bangoots, queed by Althrown in "et dorreceptures", more than 1,600 passes up, apper—And so we also, since the thealthes how become completely betherded, and stems reason has been rationly related and varper, we integr hat a few, will result to cor minds,

soming by marshine, was marshed now two extensions of the graphic granted for granted graphic granted granted graphic granted granted

The foregring consents on blowy reference apply quality to maintal ordinant, of which knowp the late Bu broads 4 des finishen; "It is," he says, "the set of separating cannilines from clints, of soluting as well as forbigs finish of discussioning and companies to compare the companies of companies of the compan

Orticions is an art. Life other acts it must be acquired by long and patient study. The studys art of judging of what we een and beer in a natural operation of the entirely but an exact judgment must be formed upon recognised principles of orbitions. * The Depressionless, or, Somest of the Lorent, in Adamset, trans-

^{*} Every on Grahium, by Northern Assold, Lecture by De. W. Certol, Peel Mon Tear Open.

Col Messon Conscion.

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And always finding not soon needly. For those who are supplies of comprehending it."

The ordinated and important componers of Orders are the pieces of the size of the component of the control of t

When he drems it to be his duty to peint out error, and coques femereli, he has do it figuratory and without benistation. Let hen use the united high with effect, but while opening, let hen ones on this pain as possible, but his not duty life yea in gull. Let his world aporthy of language, and doctors from personalities. The motival effect of the death freely and grape-early subsciencibing more, but to should be surprising in the desymmen-

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Market Park

of andse pretension; and he should nomask charletenism and every species of humber. I would have my ideal critic, Bayard. "An endifferent rest may search the act of entirests in a year be man not be of great service in purchasing the bappier greater Or another. If I substitute the the word Poet the term Muncal Company. I may adopt this spicious of the ables Dilamon who prodilection and prevention, and great altegraber section partitionslep. He read he at liberty to expects his pritted counters with setim funders and independence. Now this condition of house and independent mariful religions is remindy what seen the most competent among market critics, from faces of circumstances, are not always able to fulfil. They are surrounded by their spicers become etitled, and their alternoon impeded. T they are attached in cardy discernable. For he it known to all care that care has its perior-and very strong one too-on case that cause has its periors and very strong case too-ontimes of we have the reserval Conservative—gaze and suzple, we have the money Libert the Conservative Libert, and the Liberal, who is the most differented all the maximal politicians. The apparent his advanced married extensions he above to Shouther The modern massed errise has to contend with personant antenna) Information Character the Installable Nation of Marcia publishers, proprietors, and editors of journals, managers of necessarily properties. There is also the industrian energy of friends.

is not his interest to recent upon. It was about per a behavioral receives who, has the claser and account would, by the efficient position of the first per and the confliction of the class of the confliction of the class of the class of the confliction of the class of the class of the class the class that congenies is only his temperature. The near-livestal, incomposite only his temperature. The near-livestal, incomposite only the class of th

below him a sack of wheat, just thousand gut of the shoul. to lay it saids. He entered were his task with shority, said. Apollo with the shaff. The insread author of 'The Cornection of Literature, writes of two wheelers, of one who know more then by said, of snother who said more than he know, Here we have trues of the competent and incompetent critic. The ference, comprehending his art, and all its requirements and obligations but noder tellusions knowing more than he says; the latter, playing at masterd criticism, so to speak, programme under a cloud of critical emparicism. Nothing to more wrong application decains only the harmonismed. 'What' says

Dr. Creater, a town you account from the years whose pole marking line. for being a critic to baring an ear for music?" . . . self-occasibated ortio over find his imentantics fixed by newerful effects, by pathetic expression; has the delicate reframents of tunts second him and all that is unsettife and become in more years ago, easy: 'The appropriate of a recognit teste in trusts scene to be but the necessary rough of that state of civil nellow which cushles, and that discoulting which enges, men to secure

It is a recognised fact that there are those who assume the critic's affice replaces now after conditiontion for it then a facility for writing, and some trusted information, practally experiend and limited, swined by abservation and by heaving ments, and passiddy, by gathering the opinious of gromas marinans. These wealth be eviled present to sound transpal knowledge, and not left about of the critica affect. Her often has a region loss formance. here contracted tong by a softia who was not present at it ! More bare, sugestally residential? Here often have alaborate reflictions.

There are barrier in this counter and on the Continues. more him transce crisce; then of onscenari and parts, accom-planted magnificate, elegant writers, with every applifunction to cash's them to discharge the purpossible dottes of their office with resteal beyoft to many, to manyone, and to the paths. It would be invidious to make them, but I have them 'in my * Dr. Cobir Leters.

If, in the more important matters of religion and splittes, we shall such a ferming of introducible opiators, we extend the supplied that, in matters of tasis, the most operator rices of the most of tasis, the most operator of tasis, the most operator of the such as a supplied of the such as a supplied of tasis of ta

and are gradient.

In this problem is the problem of the problem o

agency, many e meritorines musical work might be-

Deputing that we required uses It had extracted to the third of the legislation of the first light and the required to the legislation of the legi

jest, The foot in, I have as equitoms with I how read my Shortfresh to the repromisitive of those who extincted pulses operand. Because the stage of that are great extends where we now year to the product of the product of the stage of the country and about, which, if they do not have the Billiams's of gentles and the starp of outer engineering, an everythelm, compositions and the starp of outer engineering, an everythelm, compositions and the starp of the stage of the stage of the stage of the attentive and connectation considerations of a stated evitor. No precasing successingments available to exposure of manifest of a very supplied classification. We see It bright to a difficulty, and as critical resistant of the control of the cont

Power let diguing of a primition, usual repress to be fine described to a letter of the controlleg to the letter of the le

The error, semeglished model with treads at exceeds the large places in the influence of the same of the posted tensor places and the influence of the same of the posted tensor places are included in the control of the posted tensor places are included in the control of the posted tensor places are included in the control of the control of the posted place moment of the statests, overclosed, and replaced places moment of the statests, overclosed, and replaced places are included as a place of the statests, overclosed, and replaced places are included as a place of the statests, overclosed, the statest places are included as a place of the statests, overclosed, and replaced places are included as a place of the statests, overclosed to the place of the statests, overclosed to the place of the statests of the place of the statests are included in the place of the statests of the places of the statests of the placests of t

composes of the sixteeth, neutrinosis, and righteenth entargine—have this in social. Here, And, in our like the replayment, a remain pointing for any of mentionating the sixteeth of the continuously produced in the sixteeth of the continuously are sixteeth of the press present. I shall not deep to question the estimate in high Diversy would be coltate of the sixteeth of the sixte

marters of Hally and Hughard will again by the light of modern mountal storeco. Let the outlie of music emulate the

Let the onlie of exact resolute the cettle of literature ! See for his ordinal pen! Will Honor and Horses over come to formish employment to thereary ordina? Will Stakeouser Will Danie? Will Schiller and Oothe? In blee means might remeal order he organic? Then would the area of renated Eterators be enlarged; then would messed becomistive be diffund ; then would the received critic's vecation be homogred! A few comments made the criffnish of marical performance will suffice. In this department of monical environme we might who would attempt to coole public princips in the estimate of the executive merit. I have often marvelled at hearing what I have constituted very inferior marical performances cettlementually criminate applicant and redeserred commandatum tend to bree the critic's office into discrepely, and to render all confeque epoall communication worthless. If musical enginess is to be of any practical utility, the critic ment perform his task, effect an erformed the critic cores it to the wables. I shall merhans be

side that we see not know the Three states and the well as reduced to the constitution, a state of the problem in non-stream is not constituted, a state of the problem in the non-stream is not in the Marikh Mourel Magazhot, consecound in 1818 and its long state way reconstructed and the 1818 and the state of the state of the problem operated when emission formated shown in the state of the s

judgments is upen to question. The Greatman's Schriften ther Brails and Brailso, non Robert Schrenzen, published in two splannes, in a valuable contribution to mainful stitlatum. That gifted componer and admirable writer evenced on appreciation of the bios Schrendan Sountet's compositions, as ions confinable

to the throne contains out of this has to the Bughet manifes.

This hand is in that the the captural particular of the p

arriagion hands upon Biesboven's comes, with a view in their improvements.

Distribution, the well-known aplisph spin Bhaltspann's took, in the direct at Biesboven's come, in the street of the best of the common of the common

"Med he the man who makes these stress."

And send in it wis server to plane.

Might and the spirit of Balanparen spirite, if not the world, to spir partial these me histories that the transpirite spirite spi

The tasts for mainted uplicate appears to be pulsaring ground registly assessing a netwin section of materia Greena mediation. I pulsay to by the exhibitation admirations those expressed for maintenance and admiration of the pulsar section of the expression—are sleeply indicate. No impossion of meeting to make alternative condensation, an argument information conference, of maintenance and the pulsaria, the pulsaria and green, and maintenance conference and green, and

masterly occuratived construction. Nothing is immunited Munoane in sweeted may, in the course of time, learn to discover beauty as well as subfigure in nationers. Whether in music or in personal appearance, nglimes in, no donkt, an acquired taste, like the tests for tobecon, and shaller measures appelling

We have able regulest orthor, who advecage and unbold many of the wild prayical destricts and theories of modern German ecoal shifty who pareletently oppose and atterly condens them. The control price of act coffee should not be discovered for bonefit to set and netiets may secree therefore, and in the end

gight principles gyperally poorall. In bringing the subject of mealest criticism to your natice, my

chirted. I trust that the representates of this seriest Orantal andorism may be exemplified by actual experience.

Mr. Anners Conguetts said he had been very much interested defence of the Occusion, where he thought Mr. Salaman final heen rather hard noon. He did not say this without some little. experience, having only recently returned from spending three weeks in Leipzie. He there found that great interest was now being taken by Derman in the English commons. Me Salbman's works were exertile watched for and empired, and the meeting would be what to hear that at Hambarch some of the best Regist matricals were being now repeated, and

advantage to this country if they could have as masic publishers restlemen who understood marks, but he found that was not always the case. He thought the sen of unsir had really dawned in this country, when some years since a first-rate musicism, no brages living, became a maste publisher. He congratated his friend, and told has he had no doubt in a short time he would other free-class works. His friend replied that he did not use. year little in it to show say support circu to those men who wrote such works as they all winded to not published. But what narrows of education the public. He walls then but it would be a very cool thing for marical critics to core the books which irrical Unificient

one was more specific for our of days gain by a broad for the state of the state of

waldle would have the moves materials placed before it. Dr. W. H. Scoon, was known to say their, elthungh et prescut there was no such work as the had speaker had referred to, there was now in progress, and a part was in the pross. The difficulty of getting up such a work in an officient and bless war was name areast. To the Sust place there was the different of accordant then to write, which was still eventer. With recent to the very that is madeal ordicion was beloated not only much, had thes ergins were the men who had fieled. If you did not want Asse to a year perfection manner. There were excellent product poper, besides acting as masted ordin to our of the begont and best delly journels. He was perfectly fair and reduced to recognite constructions could be seed to interfer with what severand office in the name which he highered conducted or in the vormal with which he was corrected. On the other hend, eraics could be musted who, although scamble Hency tron, knewing how to write a very presty sritcle, side to put words together, were quife treaths to dissent measure and notes. Both men were in the helsh of going obset to concrete and picking my information in the best way they could us measured matters. Any professes who had been no "down," to see a common expression, wend perhaps to astembed the next memlage to fail to a diffy spear, wery inotify put ingother, the sends

matters. Any positions who had been to "durwet," is one necession regiment, well release by technical the seak necession regiment, which he had regiment the netter of printers which he had regiment the netter for the seat of the seat of the seat of the seather had, in order to he so good masterl reflexions, we then had, in order to he to good masterl reflexions were not then yet always the seat of the seather had, in order to he to good masterl reflexions were not then yet reflexive with his fractile. Now then appeal necession, many messade offstitutes were as good in could be offstired descrete of the yet of yet yet begin the origination. There were, havenup, other clauses of critics, it when he could not expert to the part of the part of

expected under the executements, any different which were very large and the control of the cont

some time specialty general of explaining constants with 3. He is a continual flow and second flow to the continual flow and to the continual flow and the continual flow and proper in the flow and providers to your benderic to the continual flow and providers to your benderic which the continual flow of the

from these of criticisms, which should be imputibility. Only Amounted the property of the control of the control of the Amounted the compared controlling of their like factors, in which, from the first line to the line, it was ordered properties that the control of the control of the control of the control of the mane platty the orbitations of the nature. To all since during a large control of the basis princips have employed for a part if the can control of the control of the sent already to closelide published incressed to the control of the sent already to closelide published incressed the control of the contro figurate colleges. If a kine could be struck at dishout chyant, ill-satured, or calgeby mompetent ordinare, it would no dook be a good thing for main and maximum generally. Mr Lacono Biscape and thin and maximum generally.

Mr Larone Blowns small his sizes and maximum gazically which might be done in the very of sun-typing order, blossed, and which might be done in the very of sun-typing order, blossed, and confidence in any of the sun-typing order, blossed, and pastings, thusines, and everything the regist be made rows an anasot. He thought our rows by orderious was a deficient and that they were things now in an owner small as small or on the Winter, Built or the Mandard, and Robitsons on the one the Winter, Built or the Mandard, and Robitsons on the

was demarily the next, because regions and are a world then was demarily the next, because exceptly second to know doese Pringraph. It superceed to the that it would be principally the potentions of paramete tasks a sure integranded time by the potentions of paramete tasks a sure integranded time in the potention of paramete tasks. A more integranded to still the construction behalf their samegories, be believed their criticises would be more impacted. Mr. Guanten Merctures sould be lead leaved to much which the photonic of the formathing of the quality studies of 4.0%. In

might be allowed a few words-not in definee, for he did not think they needed Rooket in emberation of some of the anomalies from the standpoint of a professional municion, and, as such, critica weeld he very glad to hear what such an authority had to are. Had at the cases time office reacht retard, at any rate these who professional manister was perhaps a fiftly to blacks for the nonewhat less standard of the merical conventions of this constry. He knew from personal experience the treable there was to get profractional accommunity to take up and support summed pagent were not on the staff of such inureals were of the highest alights. and therefore municions could not be expected to support these named of second to him because that this was a year your provinciant in England would be for probinsonal equipment to even these marries the homefit of their passance and of their known to take the partiest possible opportunity of dring so. He regretted oriticism. He did send some rubbed, no doubt, but at the same time he mad a speed deal of regretcal criticisms which was folly ap-

muscal criticism including andress of different movements of

symplectics and consist, want to be given in the columns of the dethe newspapers how many maders would care for the Before such a three resid he expected, it would be necessary to provide for increased regarded only on a warment the people, and if he wight effer a suggestion, it would be that montral professors who led hold of the present rising generation should import to then some believed they would seems a demand for that which he was given same newspaper proprietors would be perfectly goody to expely. not displaced that the present expender did not roled buck to Because and other old wellers, as if they countered exerciting in the present day. He conferred by had more pleasure in reading some modern articles than in tarring to those must old anthors. No doubt the present generators holded their evolution and practical acquaintance with more, and that bright style of writing without which there perer would be now renders. All these were advanced would up on incomplex will more. One of the which a late editor of the Security Street societed out. He said that he tried to get an able staff of critics on almost every conmade. There between though he could not very total and critics as well, he always found a difficulty in obtaining the highest musical knowledge combined with the gift of history shilty-not that they could not write, but they were not trained prefermenally us a perceive. When such a max was found, no doubt he would be approvated. He thought he know such a residing, and conflict the Moules! Association incid reache

Mr. Billions, in reply to Mr. Chewley, and that the security hash and vertaged to be then the three covered by German securities with respect to English mean, and there stongers about with the world it can per input our conjugate, may be allow from a first three controls of the configuration of the configuration of which the configuration of the configuration of the control of the configuration of the controls in the sixfermant, the one pleased by them from Mr. Chewley, that the Germans sees a longer hapleman for a native six the sixle control of the control of the control of the conline of the control of the control of the conline of the control of the control of the control of the six in but had man sciences of the metabolish flow in the state to the the control, or well as a the Control, many temporally all or controls the control of controls of the control of the controls of the controls of the controls of the control of the controls of the contr

On Marinal Criticism

benountable rotation with efficiency, impertiability, and justice. On the other band, it cannot be desided that there are producers who presume to contrast the producers of messale critic, without powering the nonesser qualifications to its thorn for the delende and responsible daty. It is obtainly for his description and of mental criticism, Mr. Schleman's object was to endonous the thorn of mental criticism, Mr. Schleman's object was to endonous to child colinions which night took to be improvement.

B H. M. BOSANQUET, Etq., M.A., FRAS, F.CS, Fellow of St. John's Coll., Onton., in the Case.

ON THE GRAPHIC METHO

MUSICAL INTESTALS WITH ILLUSTRATIONS OF THE CONSTRUCTION OF THE MUSICAL SOLLE.

By Wilkian Pole, Hep., V.-P.R.S., Man Doc. Owns.

Tax copet of the paper is in expant a method of repotenting. Masted Letterals, whoch is very such is the higher class of genited intrestigations, from the easy and defines matter in which it makes relations, smally considered complex and sharers to be mounted in the min.

If we take a title, we shall have the values of ballyis underly to compare the positions of marked bette with positions in space. It is not after that there is any out physical or physisligated connection between the two though, but it is certain that the sign of rath a connection has, countries or other, because

implanted in our minds.

For example, so salf a note with vary rapid vibredone e light note, and one with slow vibrations e lice note; clearly referring these to comparative positions in spece. I do not know whether it has ever occurred to year, that there expressions were the contraction of the not know whether it has ever occurred to year, that there expressions

men, halfs and low, see porely arbitrary and conventional; there is no related justification for them, but they have estimal abuses ever since resists took a definite form, and they sincely illustrate the aveilegy I am speaking of

New further, if a repol-whentom note to called high, and a three-rejection one cauled by it, follows that the wascest does of distance, or what we call the transcal natural, between the twonotes may be considered as being on conslega, in our neight, with the salared its space between the high partition and the law may be a subject to the constant of the constant particular leaverse the law notes in position, it may be represented by a quantate interval of super, and into rend.

between the two notes is prester, it may be represented by a guaran interval of specs, and received. In other words, it is possible, and conflicted with ideas already existing in our minds, that representation of mortal intervals should be made for the eye, so so to correct place of On the Oraphic Method of expresenting Musical Interests.

companitive magnitude presently analogues to the impression which these intervals make on the or

This I call the (marry) method of representing internals; and my shoot more is to show how this mode of representation may be relaced to rais not inview, and put us a president shape for us.
I shall have, branchly, to mee you an ultravision of the

is shall have, hyanalsty, to give you an ultermotive of the system in the graphen representation of the modual Bladle, and i may at some remainly sat that the lifes of such a representation is enaboded to the vary word travel; for corrieon Gode's is derived from the Ladin, Socies, which means a ladder or statemen; and this, of course, supplies that the tatement of sypon between the worker steps of a ladder have here considered, from very counter stifquity, an corresponding with the assessal supervise between the

He Hilbh has long say given a pendinal free to this long, young the symbol of a ladder it mose of the dementary to oning the symbol of a ladder it mose of the dementary in his disgreen which specific planes or var pressum subject, the last needs to supersum the state of the land of

n mire exponenty and more necessary.

Suppose no verse to attempt to lay down test distances on page, representing two intervals of different magnifishes. On the primaple of equal transportant, this manifold he say stay, for an every interval in account to contain of a contain standard distance of the contain of the distance of the distance of the contain cost of length,

An octore D incise long.
A Sth 7
A forth 5
A major third 6
A miler third 8
A while toon 9

But now suppose we went to get mere accompletely than the horeactors relations, by respectating the suggestation of tree statement, are interests perfectly to trace—been should vise at about their? Our indices, since it is not in all reconstruct to the philosophical deficition of an interest than it should be it man, or should he of any particular magnifular theiritories, but no act the more comprehensive species, What goals or rule have we

for the graphic representation of an interval generally?
The problem then is, Orres may two muscul sounds, by what
rule shall we find a distance in space representing the interval

The first thing as to define accumently, in some scientific way, the marking of the notes and the simplest way of being this m.

by diets whether numbers.

Suppose, for example, that the upper note is due to 300, and the lower set is 100 wheeless per suppose, the maintain interval being, as we know, as outswe. Thus, the difference between these being 100, it would be very notion to say; 'Let as take any space supersurfact by 100 moles, as 100 equal parts of any set, and this half respected the outswe form; between these sets, and the half respected the outswe interval between these

two nounds." But the simplest mode of procedure is not always the right sea; and that is the case here, as one only be shown. Let us try on the same plan, the interval between two others notes, of 100 and 500 whereless respectively; which, as you know, will sho be an interval of an option. How the difference will he 100; so that if we measure by the number of whereless, we give the difference with a complete of the contraction of the contraction

Of comes this will not do; the same interval conveys the axes massed that of distance, wherever it he taken, and therefore any rule which is to determine its representation by space,

There is not a rich, but it brother a hard word; as it requires the use of with mathematicine call logarities. But the difficulty is many in the same than it is possibly for although the thousehold internal construction of logarithms require smoothly that proper is not becoming the property of the pro

sized are of them (which as all we have to do with here) if extremely may make may, in such as a challenger man mellikestic. There are published what are saided 'tables of ingentition,' by which the logistion for any number may be found by simple imposition; and with the sail of these the rela for representing the mast magnitude of nor interval becomes very similar.

Find in the table, first, the logarithm corresponding to the extension number of the upper and, and then that for the lower rate. Subtrees the latter logarithm from the foreirs, and the remainder will be a number which will correctly represent the interned derived.

To show you here only this (a, I will reply it to the view such are made.) I may say that the youthwhat this give the logarithms is normal figures—five, the, seem, or mere plot in only the lish and case that even of importance for ever propose. The rejah-hand case that even of importance for ever propose. The rejah-hand case are of very result significance; and it was also scooply from the designed interval in three figures, is will be well-discussed proposed in their figures, is will be well-discussed in the result of the figures, is will be well-discussed in the result of the figures, is will be well-discussed in the result of the resul

The legarithm of 20 The legarithm of 10	10 is		3					2,001 2,000
Hence the interval	ef s	. 00	lave in	*xpe	16650	l by i	àe.	500
The second case is 1 Logarithm of 400	de th							2,602
Legarithm of 200								2,300
Interval of the cota	99 KA	befor	ю.					304
Take another enouge to the G obers, which if	de, a	g fo	en mi	bile (i, of	254	vShi	
Legarithm of 306 Legarithm of 254								2,508
Hence the interval								-
namber .				-				176
operation. For leafue two nation, we may ear coiled the revive of the i As a further cases the value of some of the to give these actual dis- paper.	ply to identify plo of in heat actoric	this know	i teo L vi en int	nnesi Il nov erval page e	e se	ook	eg: Y	rhat is lealete scored
			Ootan to 1					
Logarithm of 2 Logarithm of 1			-			4	S#1 000	
Interval of the o	clero						301	
	For	200	nna					
	Ha	tio 3	to 2.					
Logarithm of 2 Logarithm of 2							677 931	
Interval of the f	Hh.						176	
* The operator stant new or the table, comber position								

On the Greakin Method o

	For	the 3	louri	ь.		
		too d				
Legarithm of 5 Legarithm of 5						602 677
Interval of the f	ee@					125
y	or th	Me	er 2	Wed.		
		60 5				
Logardian of 5 Logardian of 4						603
Interval of the w	ujer	this	1.		÷	97
9	or the	Me	otr 1	hied.		
		cio 6	to 5			
Legarithm of 6 Legarithm of 5						778 689
Interval of the s	disce	thir	4.			71
,	or th	· M	jer t	Sixth.		
	Be	de S	to S			
Logarithm of 5 Logarithm of 3						477
Internal of a me	jar si	ath				223
	er th	. Mi	90c	er6		
	B					
Legarithm of 8 Legarithm of 5						900
Interval of a se	loce i	(arth				20

And so on for ear intervals whatever, no matter whether consumet or dissenset, or even whether they belong to the reals at all. If we only can identify the two scands, we get by this simple process an accentic representation of the caternal between these, in a way for cannoting any other method in You may now see for yourselves how admirably these results correspond with the minician's ordinary practical nations of

Representing Muricel Intervals.

For example, add some of	Out.	de	reals	lage D	
A 60th					176
Added to a fourth					125
Make an origin					301
A ranjor sixth					222 79
Added to a minor si	xird				79
Maka na octova					301
A minor sixth .					204
Added to a major il	úel				50
Make an octore					300
A major third .					197
Added to a ramor ti	ned.				79
Make + filth					176
A fourth				-	150

(The abon remarks were illustrated by diograms.)

Independence of the Communities of the Meurica Boule.

I propose now to give you a mire extended practical country of the graphic method of representing intervals, by applying i

as the gregate general at representing nanorane, by appropriate to the constructions of the modern transcall coals, which I shall effect before your eyes.

I have already alkaled to Mr. Hullah's hidder. I am going to make a similar diagram, only I shall endouver to do it most excessibly, by giving to much of the steps the annet and proper securately, by giving to much of the steps the annet and proper

to make a similar diagram, only I shall endouveer to do it more securably, by giving to each of the steps the annel and proper length it copies to have I shall done it also to a purcy large size, so that the minute shades of difference may be made very distract to over consultances.

size, so that the missuic shades of difference may be made very distinct to your approximation.

New, settling the cases notes of the scale is not quite so care a matter as in generally supposed. I avoid at present all reference is the scale of keyed miscensershi we may take it for general that they, however well transf, only gives an approximation.

If an accomplished wouldn't are a richinst wars saked to sexual the scale, we should wealably set it weaver , but we want now positive definition and absolute correctness. The first thing, therefore, we have to do in to settle some

polyle on which we must supposed; and offer a good deal of aretion, the only one that every to me to be irrestantilly

That many note of the scale must have some definite gameone.

RELATION IN SOME OFFICE SHARE affiles to some obsent more. This would seem, obvious ruough ; but, as I shall show you broader, it leads to some voices of controvery and has been depended from by eard amount authorities. I must however, edged it here, as I do not see on what other principle we could

scenired a sonit of tree miceston The part equation is 1974 because a solution shall no make say of in formers the areas? Or others the orders, which we wan expender as a duplicate of the lavanete heelf, we only require two, namely, the two which are given by nature in almost all marical numbe; which were taken by Banana, the fearler of the modern theory of harmony, as his basis, and which have

shord. With those we can do all that in processary to force, not only the distance and hat all the sackbestale distance Thus, taking C as the key-cots,

(The whole of these date we shall find for the most rest, the harmonic relations between

But in some cases that is not so. For example, the interval. is found and to be a tree fifth: the A better one fifth of a servi-

If we were to alter the A hy making it a true 45th to D, we he forms or an according to the T. a. de Complete Tourist on The Section of Although our modern mouth safe may be taken to be constructed on her metry applications to the for confusion before what we next call decrease had very energiz was to bee for countries below what we have just anymore into as the other hard, we showed the D, we should speak the short of the featurant, G B D₁ and as lath there should not of such importance in the homeanies belonging to the key, in is better to write them pare, beying the error in the less important 6th D A.

We shall she find that from D to F is not a true many.

We shall show that that from D to F is not a tree mixed third. To remote this we mean thine shapes in F which will which will specify the dominant fifth of D. Fest both there are so imported, that they must remain true, and heave we made put my with a had mixed retail on the second of the seeks but my with a had mixed retail on the second of the seeks but

ey ---- --- manor tras on two stroom or the scale; bud to two ways, buth its kind and fifth being wrong. Before we go durther, a remark or two on this imperfection present thesestree.

In the first place is given good orderes, to my saint at least, that the firsten rode is no corrections and artificial seems state, that the firsten rode is no corrections and artificial seems stated, physical, or physicalgonic laws. If it had been up, to age it have been expected to be perfectly valued in the constitution age in the contraction of the contraction of the contraction of such accordance is in that we are up to think that in it the artific accordance is in the contraction of the contraction of the artificial contraction of the artificial contraction of the perfect contraction of the contraction of th

Scoretty, in these out of true relations between D, F, and A, we come upon the first and simplest of the difficulties in the way of getting what is saided just or two induction on keyed in streaments. It is clear that no instrument with seven notes in the distinction can be always in test for that seeks. We want other notes in saidfalps, namely, alternatives for D, F, and A. We shall find a place difficulties of orchost themselves as we proposed.

• we new go to to pri in 1980s of the rates sailed accidential—charpe and fatts.
Although these do not helong to the key in which we have been working ye, as we must determine an ease way of the fitting their places, the rate before adapted will will held good; they must have homeous pollutions with once of the notion to be distorted each. And, as we obtail see, the same emple relations will do not on an article will safely and in the same in the fitting on the rate of the little will be then since their lates on the all that in.

Per the Sharps

A major third above D gives

A

B

Fg

and we might go further in each case, if descret.

We have, however, in the above list got all the most common chousests outer, but I am board have, as mediany and fairness, to median a objective their has been relief, to the neutron of

them distreminations. The dispersion will show that, comparing the two acculates Cg and Do, or Gg and Ab, the flat note in much the higher of a two. Now, if there is now which player persons, he will all comes that this is contrary to which has been longible, and what

positive. It is, I believe, one of he made trigger, the what is preserve. It is, I believe, one of the positive instructions to value statement that the Cy must be the moment to D, and the De moment to C.

Berlan, no mean authority, combined the discrepancy or important and no positive, as to threw doubt us the whole

important and so positive, as to three doubt as the whole theresind system of hormonic relifiers, and as escelled Bilds book as the shoundary principles of visits pleying, laddly published made the escelars of so less sperenage for, laddly published made the sections of so less sperenage for, laddly James and the section of the section of the solution position of the section of the section of the section of the section of the Linear old take to give now across deliberty. See it would be

I here felt the to he way evipue difficulty, for it would be an actually to the product of the control of the principle on which these horoconic relations are constructed are so simple, exceeded the control of the co

and commercial to the attention of them philal numerics.

Recarring once to see used, any said Begin. To see furthers the
complexities and difficulties of free intensities. We have elevally
pervised by a close tage, and have git a constant difficulties and
man concess; but to get the confidentials outpread for recolors move
and account of the confidentials of the confidential and
man concess. The confidential confidential control of the
confidential difficulties. Fines the layer but we have meaningly previsind for zer and in time; for if we test the series of soice guidflowed by the delectors confer of different layer, we shall find.

	Appropriately Actions Printed							
In the key of A	the interests of	the Sed will b						

Ä		465, 665.	
ii V		2nd	
Dr.		Sel, 5th, 7th	
259	14	2nd, 146, 746 2nd	
De			

It is evident, therefore, that is get perfectly just intoneries in all these keys, we must, an addition to the eventeen codes actually all these keys, we must, an addition to the eventeen codes actually all these keys and the second code of the second code of

Sow, I now lawelly will you, that is solve to get were all this simulation pulselous, one Suprimes press, a long rise suggested process, a long rise suggested to the supplier of the supplier of the supplier of the controlled of the settle particularly in the circumstage particularly in the settle place. But not the circumstage particular the settle particular the circumstage particular th

I will now construct, graphically, an equal-tempered scale, and compare it with the one elseant before you. And this idea the casines theng you had the control the control that works each place and to thing in face. Each of these spaces approach as sentition, and two of these makes a whole tone. (The way door one a degree of

just scale, in order to see the nation and inequalitie of the errors sending from the compromise. The most important are as follows:—



I have see wish, as the paper, to bed to a forestenden on the recent quotation of incorporated 1. Very more yields on a 50 recent quotation of incorporated 2. Very more yields on a few particles of the control they control of the control they control of the control of the control they control of the control they control of the control they control of the control o

since details of the same in the world, small hearly be send to come if the world state of the same in the world, and the lead to the control of the world with the world of the world with the same in the control of the same in many when perfort insteading one to detail part as in many when perfort insteading one to detail part as in the world of the same in the sa

true intensits of every mane, this kind of perfection englet to be encouraged by avery mane to our power. The equal temperatures in its a long cuttout a necessary evil; but so cerl ought to be tolerated when it is unanamory.

DINCUNSEC

Mr er Pennen mid that he was delighted as here, a similarly assembled. They can be explained made was precible. They are precised to the similar similar than the second of the similar simila

option many minute questions were debuted by the intellects of would think that they were questions of national existence. while very often they had not even one penetical epphention. some had tried to investigate thom, and to put the difficulties before people in a simple manner, and show that these constitues were not Accold of varietical confination. But mine this was whole system of remit as it at treased swinted. Nothing could such constiens. What shor married was, that the meterial of -problems of quite as great interest as show which existed in option-why should not manifests stady them? Having said so mash-which, perhaps, was a little too much he would now refer to the entract which had been dealt with in the same There were not one or two little points that he should him to mention. There or fear years see, in string a small course of iscourse at Oxford to some presidence, he found it rether a good had been broaden before the Association; and he let noon a method which he found extrapely encounts. He elected an cofficers of reduced has borned in years Table Steer come a year and he should in the black into very lightly. He then took the priddle point of each key to regressor the witch of the correspond. beard into pertions corresponding with the number of octaves, and introduced liters percentaged for to the barrowsies. The result was that he had the whole of the hermonic scale manned cut, with every note in its cract pinor upon the pinaghric leve-heard-a. of and which could not possibly be misenderstood. He never had say difficulty with the hormonic scale after that. Another point which struck him was as to the war in which the sharps were derived. Of course, historically speaking, they were in the

the according region of 60bs, and the fate in the descending Then gradually the 50ths were fationed, and m the sengance fifths became flattened, as they were in the mean-tons system, that it was mostible to one the C shore as the third to A. Thur could not do that in the all Pethnoorean evening but it was

On the Country Made of the

south a courtie of great tener, and it shought that it has prime the court of the c

He had got so accusioned to this first it seemed probably manasingle to his than to other people. In the thought this, which in the matter of the logarithmic scale correspond in themselves to that to the precision investigate, respectively, the matters to that to the precision investigate, respectively the matter to a scale such as he weployed this convey the time is every meet easily and cloudly nationally by a precition practical.

Dr. Putt and that he had really nothing to say in reply because there was nothing in which he disasted from Mr. Resourcest. It would not be represent that in now remove he had Mr. Bosnopet and others had done. As to the relation of the tree notes to each other, and the systems and modes of tenpersonent, oil that Mr. Busanquet bad written was ensectionly personers, on that his meanagest that written was expendingly not an record his files,-which Mr. Husspaper binned adjusted.... that is a creatical print of view count temperament had almost incalculable advantages; and that to it they were indebted, very music As to the use of the prescripte keys, taking the equalbecomed accutance as the part was a very coal absoliteation hat he was not only sure that a grander like Polisis, used to represent the period \$50, was a simpler throng than the beautifus such. However that was not over important for it the thirty was to be done emphically it must be bounded room inospithest in cases way or other; and therefore these was really when, with some healtston, he drew his diagram, he said that major third to A; and therefore, is drawing C sharp, he did not know where she to cat it. He was aware at the time that it was once to objective; but still, what was our to do? Let their ask a mesician what C sharp was, and if he could tell

them applying the facts that if was the Girl in A. In should be made comprised, because that was the auditor him of R. It is made that, what was R? It might be one of a series of the contract that the series of the contract that the contract that

January 5, 1874

JOHN HULLAH, Req. LLD. Vers-Presupery, or use Cours.

THOMS on the HISTORY of BOULDSIASTSCAL

By the Rev. Sex Properties Good Counter, Best. M.A., Mrs. Dog. Ones., Professor of the Deleasairy of Ondord, Provident.

It has been suggested to me that the subject of Booksissical Monie treated from the historical point of view might opens

suitable and interesting for a paper to be read before this Associtation. It appears, however, too large a soliced for a single miner and moscower there are some househor of it which translahas much seen consistent of reference observance to be fitting matter for much a meetray on the meetral. Under these excessstances at seems best, on the whole, to confine our attention than afternoon to a few important commitmations arming out of the historical aspect of Cherch Mosic some of which, as it appears to up, here not bitherty received that sources of attention which

The first consideration which I would let before you is the meter. What is the connection between Mouse and then of angions entures, whether Paren or Semplific. bern maintained. The orietment Padra Martini, of Bologue, in a dissortation contained in the third volume of his well-hypera. * Theteer of Veste. * controls structs for a theory for bounded by himself, that the Archyveign chapts were trubbased by derrors light many facts which are attendy irreconcibile with such an time. Let us denote a few manning to the occasionation of some bands Got the sectors Helever made rout base here conviole-Oriental in its sharecter. The only time in the history of the Israelites in which they had ever hed an experiently of bearing new office then wheely Marters were use drying their execute in Egypt. Before that time, if they had any music at all, it must have been Chalden. We may from some sites of its character to an electrical the control of the control of consequently the best blindy to wary the stale and system of Whatever the words of these Andre is now such mather Bleery the Revuting. And if of Johnson, they also of his krother hans. We carnot mastes two brother adoption sol only different melodies, but a different division of the residual scale. Such a thing is inconsistable. Each would seem at care false. The functiv of Abraham result have had not one scaleeraters and one pale. And that erals evotes must erady have a level neofice, before such as neoficens as the nessent to defeat what I were by the expression to embourteen! Buffor it to to care. This was not to the deat ware by M Villatore, who would to Erret with the fact Nanciece. He was a wood reporter, and wanted to learn some of the Arch tance. He therefore retreed another, mail! at last, he way of final test, they had recover to a Amba, of which the neck was divided by feets, securately giving octors. Of source the whale difficulty of the youl incomfigu but of now scales, of a new system, of on entirely different mests, down in to exhetitute the prepert autor we person for the true Ordered man. And so it comes to your that whenever we tro a francorietion of any of these welcome, or hour an etternet to counts them on acr of our independents, on your he outly now sound absolutely out of tang to us if we goold hear it performed

It is true indeed that since the figur of Villetons we have

Conditionations on the History of

become such mare shout failure more, and probably the conclusions, as a speach by Free (free where the encounty on bearing to be such as formed), or as of disaptine customerity. But and the first model to the model to the contract of the contract of the contract of the contract of the probably the consence to both. The other float also constant, that it is more system was absorteratingly the which are contracting that it is not system was absorterating the such that can be such as proper to the contract of the contract of the contract of the six Poissonders in general. Now in a lakey that desired the cosine, although portup they make a chercical and dispursed models replaced to the contract of the contract of the cosine, although portup they may have developed and dispursed makes to the contract of the contract of the contract of the makes to the contract of the contract of the contract of the makes to the contract of the contract of the contract of the contract makes to the contract of th

3. The country of the country of the Supplement of European Institute of the Country of the Country of the Country of the other when the country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Supplement of the Country of the Country of the Country of the Country of the Supplement of the Country of the Count

In critical to the control of the co

enough is the depth which exists as to the stright of many the satisfies which go by the same of Gregories, the sate difficulty of deephesing this endsy Christian matrices is not reduced, and the comparison probability that when we are noticed to the consequent probability that when we are noticed to be compared to the contract of t

hope that is may clicit further research, and more distinct knowindge of what really was the system of second song in use during the curtiset ages of the Western Clearch.

The newtonestderwise which I wish to lay before this meeting is that of the various ways in which the reasolace of ference days demand on the traditional plain some of the Church. New it is about universally admitted that in the seconth century all meets of any hind. I colored what we represent the homeony did ments of any kind. Indeed what we understand by hermony that non-court for control contactor after this in scatters Econom. It and coltraried at a very remote period by the nations of the north It is prodies to go into all the proofs of this fact at present 4. So would some oppings viscous of Wolsh have, runge given in-Borney's Hutory Se would the testimony of Similar Conbruggie. The oppument to this effect is well worked out in the "Discours Professarie," profess to the 1803 edifies of Prite's "Barrachie des Massecon" Bet although it may be assumed many from a very distant much nurbans as ruriy as the nurto attempts were made for several contains to engraft these nordar horseny spen the melodics of the Church. If we tare

precline by the enclosures who were then medical books were composed nowally of connection facility, fills, and extension was composed nowally of connection facility, fills, and extension extended to be a great and have formed; with filters around. It is people hashly owner; in consider them red, around, it is people hashly owner; for consider them red, around, it is people hashly owner; fill higher of terms, printed singers may be taken unkey a fill higher of terms. We notately should mixed again from such company. It of not, and have imposed for the clear group by y sheet we askeringed. I there, retent, that the Content can be experiently with the content of the content of the content of the content and have many posed for the clear good by when the safetying of the content of the content of the content and have made to the content of the cont

of the \$150s and ferribe (called in those does the "Organism"), replaced an effect real course to that of the western stone is an orms. the object of which is to strengthen the harmonies of the finalistics stone. Red I confirm this sites, some to me to be elierly referable. for un order to uredon such an effect us in magined, the various immedies must be introduced in the right the principal, but file, and file-eath is an occur. It is perfectly clear, however, that each was not the case on the dans we are now considering; for the organizat was sometimes a 52h or a wilks the effect meniment by the numbritim stone and mixtures of an error. We may therefore conclude that the carbert attempts at ecclossatical harmony, or disphery, as it was sometimed called, were after fulures, and only produced effects which would Afibo; and over their were exchanged and versed among themsolves. Thus arese the sid set of decount. The treations on weath of the twelth and two next contains contain a rest number of minute value for 'descenting' as a planaum. Seguritions Scantings it was carefully stableseded and written fours. And does not aware to have been horsewed at all from socials master. on. We coult also observe that it was modified, superved, and nitimately perfected, through the investion of eigen to express the excess develop of nato-called "Veston Mercondula" To the to unleakedly over the crisis and rise of counterpoint. Like all new flablons, this sat of adding found counterpoint to the conformation plainway was exerted to an extraorgant extent, and evently chased. Nothing was thought of property of scalement of the cover education of respire to words the one abiest seemed to be to citize the rests forms with such complicated and artificial organizate as to conduct it yearly inendible.

principle spiral distribution of the control of the

fame. The reside was no longer smothered up in the intrieasies of its accompaniones, but was rather brought out end in ranted with fresh becaty by being waven into a network of varied with treat herally by being waven into a network of then the Itelian school of Cherch music in the date of Palestran and his expossion. It was without sustraneatal accommunicated of new level and was confequent to the madrigades etyle of the some racial threath of corons were solarus and subline there. any resolving as as to sait the words. Palestrian and life school did not by one means confine the traveless to composition on the plainting of his Church. Much of their regule was load side original compaction. Still it always leggely particle of the style our property system of torsitty not being then fixed. After Montercrise had discovered the true car of dominant discords, releases to the relations of the key-cuts to the descents shord, the feren of the leading note, and the nominator of real recognised,-at fellowed, of course, thus the style of Charoli reserve in Duby undergood considerable modifications. And to the vacon, order the organ, or a would stone hard home so

and the same of th

service this too verticality, we can the content to their vertical, or in these of Protectant component in Germany and Hilland, the sa-the greatedwork of shiderests and contraganted verific. Not that which we have come operations also of this, o g. Thillin Hismanian for the Boronian and Latany. And it would not be difficult to make a many of our best Raghith components when the present difficult to make many of our best Raghith components the present.

offencia to account of one has Tonglish component the possible with the control of the control o

quantizedly field bit heards of such a corrue All the generate framps consequence up to stone fifty proces ago had been stought more or less on this plan, and it cannot be suid as harsy produced say less tiged receivable in their case. He say one without for good countries of each musile, it had not more and the to try and process a copy of Parky Marfair's *Emergher will Distinguishes super it Coatte Ference, *600 Biologou, 1773; and the Palmert's *Aute public of Contemporatio, *600 Versios,

The contract of the contract o

exercises are finished with a legal at the infinition of Science Temple. We have for the the charge of Month Publicate, whereas not only use the extraorer interments assessed by which pieces be to accomplish the the annex of the charge of t

the contrast of the Tonion, and these force of the beyond significant depth of the contrast of the three contrasts and the terminal termin

Beiling, thus, that them is despitated authority for the use of an orderine in British earlier, but not for any performing and controvation, and optically more for the contribution. It is expense, the controvation and optically more for the control of the contr

crysia; but pullber of these processe possiblates a valid objection aire and ironblesame appendige as a band of performers can east he procured on cure proceed occasions. It is also no less certain that when it is available it start by bedged to with many prediscipling fittle all this may be done and has been force and more fragant. St Paul's Catholical and Westmanner Alder est componer in Prence, Italy, Spain, Portugal, and Germany green componer in France, stary, Space, Fortneys, and Germany for the basi 550 years has felt-behind him full access of a chartesers, majote, exetator, and kyrone. Owkering in Latin Italian, and Garman, including Back's Partiest Marie and many similar works, were all intended for performance in church, and as no not of womaken. Were have we have without motioners of Fortigals of the Sans of the Clerey in St. Pard's Catholical, and formerly also on the first fave of the Trienxial Chair Factionic and Harrised, Wordester, and Gloncester. Many compositions exist others We must especially remember Percell's grand To Dears and Jobbste in D. Handel's To Deces and Jobbste, and his others, and the Puneral Anthony by Hundel, for Oness Caroline. positions were written with necompanionest for a full head, and so nerformed. We see then that the trudffore I run of the hand exceptional of late ware. As to military bands, of course they here been used custinously to accompany publisher services, and no one has over floud fluit with them. The mescable strong bands and affil more distriction electronets and business by communication is facility by cooted as an emergic to be followed Still, even those have their force as no argument against those

art, and decote it is the service of the nucleary If I am right, there, in hoping (sed nuclearing indeed) that the reinsidection of the occlosion title our charcker is likely to become a mare frequent occurrence than of you, then we are hrought force to foce with a new driftening—I mean the lock of and English Carels begins a convoluted and continued and Startly the great as it as we deplicating of of year for English convolutes as we deplicating of a special concept of the contract of the contrac

of confinitetive meric, which is appeared destroic to the theory to leader. That I have done this ever properlies plants, I have a set to be every reported problem, I are only too remarks. Ever cool as it u, I can not written hope that the paper may be of every sex. I have related which the possible that the possible that exhausters are precised problems, make every large out some mental finest, once precised large, some event blant, some second contract and the contract of the sex section for the contract of the problems. I have been a second contract the contract of the sex section for the contract of the problems are exercised the supplied to provide that the fine.

visconostr

Mr. W Cravera, said that ones of the conclusion in the proper expected to fapored on the scenario given of Asha hands beek, in the great method, and the state of the proper of the scenario of Abbel-Kolle, which was written, not a Arabe Lat in Produce, about the commonsuments, and the scenario of the s

Considerations on the Minter of

the sixth neutron of the Heigen. Hereing receiving species in the declarate section of Figure Layer matrix, the object for experience of the sixth of the sixth

modes. The study of music, so on art sad a science, resulted from subsequent coefficien, and the abilitator up of such ma-

night of stony in that mylindran. The next lattered nort was as to the question of the kind of masso in the at and from the time of St Ambrons to that of the great Pose Gregory. St. Answering was the month of St. Archeon and he as well as Bank Serian and Jewish was Cherd masic was possered in the bank refled the "Astiphenerines," but he believed it did not how with men, necessary to the deficition of Aristella. Ambrose had retroduced any new kind of manio for the Church it must have been well known to St. Augustine, who wrote maon allegan to postblar of the kind, wither is there in the valu-Ambrow and the latter were Controllers and Beston; and often Greener by regree found for Teldese of Settle: All marie in say of them. He had coveluly read through the life of every Pope, from Grogary, dawn to Vitalian, for the purpose of tuning any industries of change in Church wave. Another next John, the apply shoeter of St. Poter's at Rome, to the northof Enclosed, at the reverse of Recorded Horon. About 170 verse after Gregory, Adrian houses Pupe, and by him emers were sent to the Eggerer Charlemagns, and then wrote

the nationals contention between the Proposition of these times. He had not not even through the entire, before of these times.

hat such are the explicat known indications of any desire to change or to regulate the stelle of Charch receipt. The intra-Annual of a complete strates of Greenvish terrals could not have because it was file a well without a rose; there were marks to tell how far to go, at what witch to begin, or upon what note to and Another point to be region! use that Nothern a writer of printed by the Albe Sephent in his "Scorptons do Masion. Ecolorus ' (L. 25) - gives the ecolorisation! topes as enfine on Druggeron would differed from all other by changing the resition of the previtines in every coale or mode, and its make coales were derived floor one Greek scale and its dominist. The Oreck Hypes or described were the state as ears, hat taken a Rearth below the key-note instead of a Fifth above it. The June of the Greek Dorise, or D minor, was A minor, each having mades were constructed. The cely difference of rate between could not have been intended to charm, but to disconheat the oac. It was originally ever without harmony. He could call look spen it as haring coverated from Church discinkas when

pisasone und prificiotion, even de abreiten tota, dust intig to make himer fameriels bern in order to be made large. De flexers stilla beoustjeventwel the sensor fast Organiza, ment even very pisasone parties and an even best despotantes van very pisasone parties and a sensor famerie even per pisasone. Het shanght the chem of Organiza mannet occupione. The product of the product of the product to respect to be parties and the sensor fameries and the product to respect to be product to the product of the product of the product of the parties and the relative to the product of the parties and the product of the parties of the parties and the product of the parties of the p and beckeres and were not Grogorian, and this opened an was a reason matter of recipion. His norms had been more movie then he saything Gregorian. But as rounds the very general spinion new catertoined that the engly remain cenal. here natured horser in these who board it, he thought that was a great worteby. All slows of the benefitful wout he relative that it was agreen historical. Some people when they wont to the National Sulley culicily passed by the ought paintings. because they did not come up to their modern ideas, but he con widered anybody who could not stop and appreciate the hauntiful pointings of the 15th century to be deficient in sulture. Every and should no for an possible collected which a financ of mind as to appreciate beauty in different ages and under different phases. which they were position, and he conferred by had great dealth nover many shythenical words to such totally unrinthensed with. In the words they specifical about guarding to rivides, persecutive the most frightful fulse quantities both in case, he could not believe they associated those words with lorical dilerena for Greenrigants to salve if they could. As to receiving upplie to write on a Corto Force, he coundered it rather a releaguate more ment in the present that of free modelatics and boudfful forms in specie. At the muse time he should like recrebally who had now restorations to be a Gorough some of them at his fingers' ends. But to entertum the adea of beinging up a pupil to consider that not so a monea, but as no and he believed to be visions. Let it be a part of his massed comething basher to be attained afterwards. With record to agree, although people had sometimes rather combact notices as to what an overheady was. The other day he recognil a habit on the Odd Follows' Fits day of leaving the brace band play up to the church door, which he did not very well like.

time they should go minds and play stated mann, and wished him to write strawibling appropriate for the constant. Now if it were a vary good horse hand he day not so much object, but if it was no coftney Old Fellow's head, he thought here had better Mr. C. E. Strauge and he quite sympotimes with Sir Frederick Onseley with regard to Geogram man, and

resource Contacts with region to temperate makes, as shought 10.0 States is consider were rether concentrate. In the first place 10.0 States and we shall were the matter as a relief of the grant, while in the next hereal has admitted that which we now east the "Gragorina bases" are not as all what they were enginetity, so that the ground on which 10.0 States are decreased regulately, so that the ground on which 10.0 States are decreased.

Sir F. G. Occurry and the great principle he sat forward. following the exemple set by Gregory, St. Ambrow, and the originators of what was new collect the plain cheek was to he was not received to accee with those who wated for its exclastre use. It was not a ensurer of the beauty of any of these portionly taxes, but of the exclusive use of them, which he was arouing against, and the superior adventage of taking the heat though, because they had no notation to express it, it was prohable a assurbing realitional handed down from one to seather and was new irrecoverable, and madern students could only at knew what they were, so that there was scally so sederify left, their with our own repeture and therefore as recented in was probably totally different from the proposal. The appropriat really reduced shelf to a notabell; if anybody would show him exactly the very notes, the accept, and the time in which these tonor were some in the seventh century, they would have a strong and outer; but he defed acrone to do so, and therefore the

semplest ones to rotating. We We We We will be strong emocions with a various Left W. H. O Courts of black many emocions with a various convent by large field that it was noticeatedly deveral flows. He was the strong of courts by the law of the law of

service of the Oracle, by all more in them do not been contained to the contained of the contained to the co

grade here, there, "I hardy the thirty could be provided by the property of th

integretar altered his globs, so that the contract to him to borring age to the parkots outside discussion, smedy, whether Chresh componen of the possent they artificately been is used that what exceeds the contract of the possent that the contract of th

Reducted State of Western Roses

some skil deskiered articles which came again take are sed and a wast which was pretage not in the first naturate their sheary. They were oppossibly satisf for popular see. If you need up to entitled at its time of a Gental Federal and responds to bear the vision of a great meltitude, you very office bound oversities over your body of these sections of he could be could be set to be a set of the property of the could be set of the could be se

heasti not only or muon, but us the Church
Mr. Churches estill he had quoted from a Separt, prioried and
published at Trans, in Commul, of a hottee delivated by a charge may, who was the Procentur of that profine of the Discess, in which he positively asserted that Orden could was all Divisa only.

The property of the property o

A figure and was much or the suggest with behind.

The third was a market of the suggest with the such a suggest with the such as the suggest with the suggest was a suggest with the suggest wit

Indicate a to be the all denomination in the strictly below (as in the context of the context o

boys' sugging resocutive 8this and solutes above them. The Courses and he would not be recomple for the fourths. No car was more compelent to try mak an extenment as that to which he had referred than Dr. Stepper, and he loged to would do so. He thought the French measures in early days had been rather deposented, become many of those described as Balvin as were really flaths Relations. The delition. and he was not eare it was possible to trace it. At nor rate, if was quite series that in the facet ages of medieval architectree both horses and esthedule new built in exactly the same stromestal music, but he was hoper to say that occurs were being introduced as that as possible, not only into the Church of the research he throught at would be elemented to first them to strugged satruments. That mucht be done with great advan-With reference to that subject, he was included to think that in street does which was now eveny on with coference to more bad acoon, the elegy had been rather in too great a harry so getting and of parechast each stoos. In closing the numbe gallerier, they

Manholastical Music in Western Europe

worshipped with their electrate and because for many years. workings it wis near currents and tassaces her emory yours; and they had green greet offerer and had done a great dark of resolved thereby. The thing to have sleen would have been to improve, not destroy, those orchestms, and he trusted they might yet are small bedieved matrumentalists in charelus a fittle hatter made with respect to succeed and modern maste, by angingt, he referred to that of the statement proture, treating Oriendo Goldens (who hand take the assessmenth contact) as reshaus serves not hive secret English or Ballon more, and could allow for their male in that easitier, he eguld not understand the possibility of seyane putting tired of Gabines in F. They might is once because thred of the our, the clouds, the trees, or their dolly bread, or capthing size they met with overy day. It second to him to be the most benkly much at was nossale to conceive, and a bille more stady of that kind of prayer, and perhaps a little less of the alter-modern-especially the French -solved would, he thought, lend to a higher style of spolesturboal music then sorribing we had yet seen.

Kettle deum

Favoure 7, 15

WILLIAM CHAPPELL, Eq., F.S.A., 10 YES CHAIR. ON KETTLEDAYMS.

- -

The sufficient marked interments were most probably these of procession. Must consists of two parts of typins and time. To produce a time requires a certain assigned of constructive requires considerably more, whereas right may be produced by heaving tagether any solid substances, or own by chapter hands. By degrees, sortions and also improved qualities of action of the contraction of the c

The second of th

occurs with the side draws of a register!

I handly knew hay to finer the lays between tambearises and draws. In may be said the temboration lies only one hand need is open as the faction; has no see some of the said-the draws to be even in version measurem. On also in the gignedic temboration contributed the property of the said-the draws of the even in version measurem. On also in the gignedic temboration convenient probability for the base from because it takes been convenient probability for the base from because it takes been

room, though very infector in quality of time. The temberates in a skinn elimitated on a morror beopy light enough to be extend in one basel, and heaten with the others. These of in the Organia Praise Movem is modern Regritton interesting and studience enough methods in figure in the Book, it is probable tool Mirkma's timbed, 1,000 power ago, in proteining studience and the descharacters and cightly by the Ordering Materials of the

I have no intention of going scriptus through those 3,000 reach . But will rether at own rows to the subject of the modern nettlefrom, the only really musical metrument of the dram family. Very little has been done towards investigating the theory and practice of kettledrom making. It is well rederstood that the testrement is to be a metallic round like a ritchkeith or moldren outern) with a skin or head of relies, and with sundry sorres to sare the teasion of the skip, so se to tage at to the regard note. These serves work upon an error ring, round which the skin in a most rists has been accuraly lapped. to the faces of the expression then to the untelline residue. called, end indeed the exact function of the shell, see subsects requiring scientific toroutgation; and my precognil object to specking of drams has been the hope of radioing seems of our members to give as an explanation of the true theory of the functions of the shell. For if the theory of the shell can be properly accordingly it might be enter to decide was the last age to he given to it. At present, as I have said. It is a metter of times. Without a hamiltonium on a little langthout a hometahore. or one of those forms with a orbindrical addition, are the ornal varieties. Boxedimos the shell it even sunt-perform, which stress two nameton, for omongot kettledram makers there are bigendiane and hitle-endiane, on in Lopeto. The head alone given a mad provided around without extrated at all: witness the dresses calcibited by M Sec. the celebrated brace instrument maker. But the addition of a shell magnestionebly improves the entitie of the seemd

The same is a reach active question than the shape; it depends nearly on the range of color-reports. New whole that shapes merric on the range of color-reports. New whole that shapes is a state of the shapes of the shapes of the shapes of this or two mixes of the distance tests, all of good quilty; see recognition to two clarges, one legal tests the state, or color-reports to the shape of the shapes of the color-reports of color-reports and the shapes of the shapes of the shapes of the color-reports the other key a whole takes. That which there is ground by legalsh distances and draws mixes, then I have been shaped to be a shape of the shapes of the shapes there is the shapes of the shapes of the control part of the propriets.



to Brethoven's works. In his 5th and 9th Symphomes he has

burse. I once asked a drammer to a Lordon thester why he had each on recessors pair, and he said to bed bought the largest he could find. Some one that a very large archeten should have large drame. But I would just ask whether, in a bend of several handred performany, the violancellos ere replaced by double-Steen's selected contractigates? Certainly not; you would and dothin or twide that of the kettledrome, as in the Beadel Festivals at the Crestal Palace; has excluding, I boxe, the

monster deems, which only produce a kind of thunder and attaguishable as musical notes, and which might first on well be performed on one has druce as on two kettledres Another electrosines of house draws too large, even when they do roturn their value as musical notes, is that ther at a subsected of Manufactor's "Country to Edito" at the old on a coordel and Haurica, was at the drame. The paramet (color) man there

"Then, sir, you can't have it," agenced Goodwin. Now, why could not Roches have it? Simply because the leaser dress was and therefore that note had to be got from the larger dram as colors for law whereby the necessary because recommonly invested With proper drams, F to E, all would have gone night as the

So dram qualit to exceed twenty-nine or thirty raches in discreter. What they sught to be the size of the semiler draw, of the larger is thirty inches? Here we want some experiments on the effections of membranes, for I record that in Chiefe or chembers that any theory has been established. The difficulty of obtaining homogeneous membernes may have determed philosophers from prosonting the sobject. Mesowhile we may southe to peobable that the number of vibrations per second of which is the case with metal plates of the same thelemas. In strings we know it is stressedy as the lengths. New we have seen that the two drums comband extend from F to F, and that such our can have a seage of a fifth. The larger dream can thursday et a every note from the lower E to C.

and the smaller one all noice from B fint to the upper F.

that is to say, the smaller dram to a fourth Lieber than the hopes But the numbers of vibrations producing two poles at an interest of a fearth are to each other as 3; 5; therefore the areas solven as w/4 - w/3, which is no 2: 1732, or very nearly to 30: 25. This comes true in penetics, for the drums at the into French Crystal Paleos 28 and 264. I would again observe that no drew abould award 66 (sehas or thrombouts

are tened by means of emora, superally about each to each, a key being applied successfully to each sorest. This takes some tone, hereder enseting a niight motallic noise, quite and the if the proloutes to observe adily. Station draws have a final Talaxed key to such sorest, which asolds this, and also saves time. But these fluid keep are in the performer's way in passing from one dram to the other, notes a few of them. at Consequent about always after a sufficient weather of hard rest mosts of a symplectr, unless they allow sufficient time between

There are also several syrevisess for toning by means of use motion. An ingresons musical-instrument malor, the late Corsaling Ward, took and a malent in 1807 for this parents, the econifications of which may be seen ony day at the Petent Office in Southemoton Buildiam. An endless cord masses over pullers where a lear horizontal arrow worked by a handle controls to made to tuesten or elactors the seed and so turn the draw, The trains in done so repidly that at is possible to play 'God serve the Queen' on a single dram. The tension of the cord, shown by a system indicates to read off naticles so, that the dress was he toract for the ere as well as he the eas. For the note desends on the treaton of the head, which is shown by that made he seabody that chotses. Poster makes a drom in which curved here come down subside from the head to the bottom of turned by the performer's flot; or she by turning the whole drum bothly round, Einbight, of Preakfort on the Main, has a contrivuous con-

corning, of a specially loop gast finels for a slight, which on he is set. The same of the

seed of bream whered. No perificular resides beyond habit is susignable for this afference A regress the heads, we greerelly see a third opens white side used, about the colors of lawy. But a there are dissert transported ham given a for their teas, and entitle sized be always used. A resident approach to the Architer requested point in the choice of the rights. The Architer requested point is the choice of the rights. The small crosper, and do not be requested to the size of a small crosper, and do not be requested to the choice of the law is the color of the condition of the law is the But the law is a dwo of left now much better. But the laws

 Mr. Ward tails as that in the reason of he represents he had then that the rote gives by a dress upder a terms of 27 cet. We see no course where that great by the same from with a tourism of early 11 cet. of all or classes having weaples such in the form of a habitage of the classes. The same of the course of the classes of the c

Establishmen should be jihood in a shashing poorfice treaseds only seen of the state of the stat

ne aggeren, and more he bettered it is a marky age. All exceptionly in the stable of the it, it is quite in fifting to expense that may feel will do to got at it, it quite in fifting to expense that may feel will do to got at the dense. I have more a resonance corresport them got not be excepted to the contract of the contraction of the contract of the tenth of the contract o may determine the sharester of a white navorants, and the dightest shiftstar, or the assignmentation of the required digitest of flatters, may not be design of the composer. Show the digitest of flatters, the control of the composer. Show the second of Garay, these team is a last to see one in e thereof a "Joulant," and was see more that the flatters of more self-order of the control have been tength in the name could not all that a certain task in sequents which counts to analyze, the is a secretable consolidtation of the control of the control of the control of the property of the control of the control of the control of Childratch and the first me that all the control of the other values of Childratch and the first me that all the control of the other values of

The old practice of writing dram pasts invariably in the key of C. He tempole and become is very inconvenient. For inclasses, if the componer writes

Tony to G.

the C becomes a G, and the G a D; and as the G is too high to be got out of the smaller dram, it must be taken an octave lower on the brown, and the well robe will be

e

inverting the passengs and confusing the preference. If the same passengs in fer Tunquai in F, there are two possible ways of exeenting it, vis. :

and if for Timpual in B7, also two ways :

The onespens should therefore influent reliable of the tree ways to work, by writing the real makes, (I will the remainder that the strikel neary of the tree drams in from Y to T₁ one states). When three drams are not inguiting a not Rigadrie Hancontol Byraphony, no other method of mying world be to brightly. The same with Endowskin's Composite in 10 stoops, where the drams are in D as I'v, a most ingenies accordingtor, where the drams are in D as I'v, a most ingenies a conditional reliable of the interior and with a label of D mission at well as in that of D mission at well as in the staff of mission and the staff

in travelling; but hy taking off the head of the larger, and sowering the laser firstly reside of it, and putting on the head again, the halfs, or lesst, may be dissimiled.

If I thought coprise and cogravers could have me. I would existed them to discontinue sporting through with a.y. The word is Italian, soft the letter y does not exist in that harguage. I would just mention another instrument of personnels.—the

Wood pair interest according to previous its proposess. The shape and size of which, in this country, some to word, the shape and size of which, in this country, some to word. French in interest has a surface of French in the country of the size of the size

cyable. To see up, these are the points I wish to insist upon.—but. That no draw should exceed 30 makes in disnete, not that the two draws together should be from I to IP. But. That the temporare this vellage heads should be such trained on the third to make one. See I the efficient with much limited to the thirty tensor care. See IT the efficient with small knobs of

spange or this shault he adapted.

If the descriptions need it is supporting views, the exceptionsy in the make of these materians would come, and their effect become greatedly imported. In excelsion, I would repose the layer that comes on will undertake to explain in an theoretically, the way in which the shall of a bettlerloan modifies seed impress the way in which the shall of a bettlerloan modifies seed impress the way in which the shall of a bettlerloan modifies seed impress the way in which the shall of a bettlerloan modifies seed impress.

the ways friends no stell of a sometime more work of the thic tota of the hand. Experiments are also washed to fasteralize the heat shape for the shall. Such invastigations are perficully implicated opports of our Association, and we furthanisely present many members highly competent to easy them out.

nascrisoro

De Dires and de anglete memoral gravilingoriem, in which to had given memoralism, and persons are more and the March to had given memoralism, and persons are more and the March and the person and the person and the person and given a right, that it was a backer to the best of the person and give person and the person an

On Kettle

were most guidence of the first first great product to the second back to be a first great product of the first first great product great great product great great product great great product great great temporals. In the sum of the madely inscreened, the strength great great

figulit having and trembuses was mucht take half in the statests. fort octave, and half in the earlit-feet; but no doubt drame ought to be of size corough to krong out a good sixteen feet note His own experience was that in our large orchastras, like the the Grance did seesk a signera feet note. If so the france seconded in trainer, and were not playing an outer above. There should be, be thought, a great professionages of the sixteen-dest the character to the note. Then, as to mechanical construction, we were listened; belief. They were playing the main of the fature with the dram of the user. Owner to the nefertaneto a many union, which ought to be empirical and driven out of the research world so soon as pourths. Mr. Cornelins Worl's plan down. These was a German plan which he helicred was prophthe same as Potter's, and also a plon he which there was a lever under the dram. The dram was very difficult to take; it difficult than other base paies, he thenebt a road deal might be sions towards setting an accurate note, by attending to the conof thomb. He had had a good many experiments made, and was rate to the Association on some future day. He helipped the

contains thus other loss cases , so thought a good door length to concerns at the sixth, which section I is made related by a fixed of them). He had had a good many representate such, and was a fixed to the sixth of the sixth of the sixth of the sixth of the latent is the Almadoxian on cases place say. He labered pile hereign beyond the sixth of the sixth of the sixth of the hereign beyond the sixth of the sixth of the sixth of the hereign beyond the sixth of the sixth of the sixth of the hereign beyond the sixth of the sixth of the sixth of the latent the third is a six to open sixth of the contents of the sixth of the

excity, by exceller that which connected, the earlier with the sixmade to vocable as the lon of a speaker racelled. There should he some standard of pitch, by which the drammer should be of reeds corresponding with the consider nate to which the draw-

Mn. re Promove thought the Idaa of being shie to open the

covily weekl yield good fruit, and loged some one would go minutely into the functions of the deet, because he believed

T 1876

WILLIAM CHAPPELL Rip. of the Cour.

ON SOME POINTS IN THE RECEIVED METHOD OF WHITING AN ORCHESTRAL SOURS.

By Prefessor W. H. Merst, of King's College.

Luxt mands for that the electration 1 have reduction to him placing not node, mark the digital that of a "Paper, any in disappointing, for more reviews then eas. I fee that they placed have been Shindhood by degrees, for one trigger would have been submitted by degrees, for one trigger would have been too employee for their, or any other bits room, seeks they have been with an architect may be seen that the result of the control of the c

quartering.

In the short experience which this Society has, up to this time, given us, we have support a succession of pagers remarkable for the width of this stope and for the complete new with which they have been tensied.

It spraws to true between that there may be found many points in the theory and practice of our huntiful rat, which would affect interesting topics of the case one, and on whether where the contracting of the contracting four on introducing of contracting error developing four on introducing of contracting error developing four or introducing or contracting. This she destricts of foodblass, consequently on missions. Every writes in causel has tief of the articles of destricts or the rate or the adjacet or what the formation of the contracting of the contraction of the contracting of the contract

solything the laptoness is about it. In his to re-results, mark, of the re-results about 10 to the relations of the closer's related and results about 10 to fire exclusions of the closer's result of assent monopole compositions, on which it was any duty for any market 10 to the product of the velocities contribution to extract the contribution of the contribution

in this same way allow it to remain. I take all remonsfulfity." and so on County with this the fact, that when I was represeing the Cherale from Mandelssohn's '8t Peol,' 'To God on Huch,' I was recommended by suo of the highest nominal enthorities in of seal or led allowable or not the common of which on have not yet been hopey snough to discover; and that in disconsing such models in a marting Mr. this same word or thought might excess, which we should be clad to using end, appropriate as the main way out of the difficulty. For that there is a difficulty to remarking a year; stadent that a rule is cost and

But I have undertaken to below helps you to day a different peint, as to which the statement I shall have to make will cover

bring into union with emerific knowledge as far as negable, it Is in the exectness, or trathfulness, to which the written character shell represent the performed effect. I imagine we are all agreed now this. Through them are now who stick it advande to strent a new system of wedges much which does not nesteen time paternal employ, the advocator of the old natation above to If broates it claims to represent to the sense of the eye what the some of the can into remot. We down one of our meeted notes actually here, and it is a matter of transcissor, threeless. that the relation between two and our shall be as almost maletaxand as mosable; especially when it is remembered that the onic to read. I hope that we may not be expected to bloom if some of no should think we have fallen anto a method in which eye and ear constituently purples and even controlled each other there are sood or extletion reason why the verte to be placed on drams, should not appear in the fall sease at the pitch we are to hear thou advoid? I maintain that such a pine wealt growly simplify the normand of the seece, and that it can be depo with.

The transming instrument which plans the most important

part in the archesiva is the charinet. No more important sadding. has ever been made to the old cauginal conhectes of violen and handless than this levely development of the against challenges

We all know that a passage weakters in the key of G would, on

On the A charact, a money led lower.

On the small 2 flot chemnet (used only in unbody busile), a mixer led

To exist these who may like it start from the beginning, and to trust the concertion between the estimal formation of the control of the cont

by all conserved by sold to the compact, both up and dress. SER preserving the desired quality of toos, it is possible, by lengthering the tobe a trille, to make it seems it fills, to make belies the consulption, and even, by a self further addition to the length, to add marbler countries to it. A. Further than this is record to the possible to provide a victor the theory in the it records not be presented to proceed, whether their triping in the

But, this livering, been done, at has been from their creative senter reve lears of the classical, errors observe on their flack, certain there on the A; and this is one of the reasons when, tentanted of madeign the lenger cheful's sold large saidful with A; the contrast of the length of the length of the contrast of the verying set of these whole, fitting that the power time, to a ready as O distinct, and their flexibility the position with a verying set of these whole, fitting that the power time, to a produce that the B for one to the A largel, at places. The large contrast is the best of the contrast of the contrast of the large contrast of the contrast of the contrast of the contrast of the large contrast of the contrast of the large contrasts, and the three largels of their respectively, of making, for matters, a point which would be very difficult as of cheener, one on their sole which would be very difficult as of cheener, one on the

Has the article that is of charges in considered the terminal and tops being it is most, for read of Char here the cerefficient the correlations, and the reads of the Rat observed and copy being it is most, for reads of the Rat observed, and of the Rat observed the correlations are suffered as A solution, has been also widely not of gain in product forwards or the sufficient and the suffici

required. New all this is perfectly natural, simple, and inevited, nation we are to be related with such secrals only six engines by the posent tale.

The Goldminn would thus play all the music wolden, as walter in but he B first derivate would play a time leaves, and then the man and the same that how, the difference in patch between

application of Ω : if we write a passage for the C element we write the notes we expect to kear; but if we prefer the tase of the instrument in B fact, we write an anoth hydror thus the roles we expect to been, as the instrument in lower black C, i.e. a tree (or as the key of D), and if we perfer again the characteristics of the A instrument, we write as much hydror than the solution expect to be an A is lever than C, i.e. a hater B is C in the solution C is an expect to be the A is lever than C, i.e. a nices that C is C in the solution C.

key of E flat). The skill of the componer to shown in his choice of that particular chargest which will produce the how office to the key several and the beausement to key to habe to change, that his somewhat has conjugated been changes him desirated in the occurs of the macroscope.

This is part of that happ knowledge of effect which a judicious use of all propercy of the occasion implies, and the study of which, as all its outlies variety of detail and constration, our only berussale with ide head? For those to whom the occusionation of this process is new,

First observed to the consideration of this process is seriling only percential to said that the verticage of in thresholded in growth percential to said that the verticage of in thresholded represent always as log a major enough shorr that it which is proved by the which gravity (or but should not be about and other passes by the consideration of the consideration of the conclusivity a rither three between North composition in C (or A will see see that the consideration of the contraction of the will see not suppose that the contraction of the contraction and within the virtual question. But I then I find indicate the most, as no disquaredly this class, seven the the lay or C. (then the contraction of the contraction of the contraction of the layer of D (one mission) which the contraction of the c

the key of D (inn sharps).

If the composition be in B flat major (or O minor), the signature of the B flat electron part would be that of the material scale.

If the composition be or F (or D means), the signature of the B flat electron model in the of O with no charge.

If the composition be in 8 flat (or O minute, the signature of the 8 flat chartest would be that of F (or D minute). If the composition be in D (or S minute, but clotter in A would be implicated by in D (or S minute, but clotter in A would be implicated, and its eigensters would be that if F, with one flat.

What I sak you to observe us that the approval difference be-

charins to continuodly rhanging; and the conneption between the sense of the eye and our is a often and as variously controcitive.

I have confined my statements personly to the two chirlesis must in use: If would be intermentable to centile examples of the transportions of the D electrica (not much acon, between) and

ment in near it would be intermentable to create ensurghen at the transportions of the D electrical (set much seem, between) and of the two small character and in military bands. The case of the come di beneatte, and of the come Jagton as, of course, smaller. The temperature of the best accuracy respects with LR spread parts are the natural bay two plaqued at the RI field with leave, if would be transposed is second below if the one A and the leave, if would be transposed is second below if the the A hadron, a sample of the RI field below, a sample of the RI field below, a sample of the leave of the leave, a sample of the leave of th

lead the eight two sidner (in the log of the decreasing of all the LL in the logs, the two throught the late that the late that the late the late that the l

ment, and one is which I was see shows. Corporate the supportation made on the other of the clarical, Corporate the suspensperitions made on the other clarical, one fast organ. Here we have sings sittles conclude, one, two, or the organ. Here we have sings sittles conclude, one, two, or these colors where the notice players in a 118th, or a lever of these colors where the notice players in a 118th, or a lever straight, or of the most fan-fitted heremany, is accompanied by these internotice. Such cuts becomes a first own or made baseling was expect to see all this on paper? It belongs peculiar conclusions of the mentionment, by which it is effect there peculiarly made and which we space. Within the wavel to see a what we should be according to that.

But I exhicipate the possible statement of a difficulty as the intention of the composing, were then parts written that the occurs on they should sound. Bow shout the performer it is will be saled. In the time be period, I reply, with he part, exactly the at present, capital and transposed from the soon, under the syn of the composer. No difficulty will be expressed in this own fasts,

in facility, a copyin fully copid to the face? Each propin make temporalizes of a stone, very day, and a may of them we exemplates for motion into done its mechanical employment. In our done tile mechanical employment in our somework by the professor kinesti, in a continuity of modernic mechanical contract of the contract of which a mexican treat be submered, or third, because the wind has strated in. If the part is professed, come right should be strategy english and if only the first reducent would find still the contract to the contract to the contract of the contr

should be a serious bradmoon. Nor abouit it be expressed, either, that I am desirous of morefrong anothing in the adjust to exhibition of sympo which is worth respective, or of reductor the introceics of the set to a sergored lower standard of intelligence: of 'repulsivisine' the set of meding from score. On the contrary, I see designes of realized rough that has been done (Tarm some conditionals) milities for the exhibition of the site and tener more of the years some telering the part can have now difficulty in seeing it in its proper character, and is its true relation to other vocal parts. There exists no small quantity of vocal concerted reasts in which it is difficult to say by what voices the various surts should be now. formed, for the want of the proper defe; and I need hardly mention, in this connection, the absorber of some pieceforts source of opena, in which even the best value part is printed, like the rest in the trable stars.

The the same record, it has been been the upper part of the violencella part provided with the O clef, in the proper regulars now with the O clef, for the played an octors lower. So with the O clef for he played an octors lower.

meet park, as it in termed: let it go on to the stare with the Coled on either the 2rd or 6th here as may be been And I dealer whether we have not last constitute of 'wassemblence' in the disease in the speak score of the septemb claff.

when the state of the transfer that the many control of the state of the state of the state of the state, conclusing encountered may perfect out advances or practice, so us to detar the mediantal pointment assessed rices after the ready. There is many a more who assess play a sea, who can yet make out very fairly the intention of a verol scoop, to when the intemporal hase of a full come are as a tail fairly well in the mixtle of a measurement, not to be seen through and purisically disposable to

ramble, not to be seen through and particularly disagreeable to disable serie. Associary of one set see valuable to it is proportion to their soprimenesse, and the firm it past whom is every sequirer a prefessional clique new an enemy in disguise.

the assential side, knowver, may be considered proved by the simple fact that it has been done of rook, and thet, stoney of thes, by one of the very few manifolds who have cereal bailing from an composer, and an feether too. I meet the liberation of browning like solutioned (Recypius), the open "Assentials," the Shan for three vasues in Y, and the open "Assentials," the Shan for three vasues in Y, and the open "Assentials," in present complies of the channey gives persiste without reasoportimes. In

the infirm is a part also for the "our implies" (which impropose a fifth), primar also in the phaying lays.

Note is thin the only dissistance more to be dried of more who have in third published works shown the possibility and reconalisance of what I advance. Robbillon, in the "chight of Bagdad" (of which two collines were published in 16th acros within two years), and Middal, on the "Jamph," and in "Arochant," an open definance to Obernánia, howe powered the plant densely.

opers, definated to Oberahat, here portesed the plan demand, appearably without accident to the performed often of that works, as assuredly without injusy to the own reputation. There utiles, include, one seast opens, which from our point of the performance of the performance of the performance of consigns on on only, manager to MM. Christial, Edudates, Nicolo et Carlot, merchanity from its remainer from it Peris, sur le-

If was a work commissional by the Government to infamo for sufflany actions of the Patistans, and consists of an executeby Stools, and of tea vocal numbers, of which Cherchait wousthree, Schridden dee, Nisole two, and Gold there. In the published full most the chercat posts are practed in the playing layer where imagnosities, on the numbers contributed by Chernteis and Randfallan, which is those witting the Nisols and Randfallan.

they are interpret.

After that is statuted by and but there is explice cointif.

After that is statuted by and but there is explice cointif.

After that is statuted production if it is the related to authorize the coint of indifferency and if I show a convenience and stratification of the coint for the resultion. I have shown except the cointification of the cointificati

printings of a line of Bhilderpoors. These notations—
An desirem error,
One that is no, and on on alrea,
To see that the stage entered serve.

.

Mr. Chappell having randed the chair, it was taken by Mr. Onloren

The CRIMINAN sold he now no reason why the electron purchashood not always be written in the lay of the composition; just if so, overtare were in the lay of C, the person who had to play the charact translady played 2 on a B flat electrics. He would be glost to been seen reason assigned why the C christer should be glost to have all the contract of the contract of

Some gentlemes present, who were in the habit of writing some, night perhaps closidate the calinot.

Mr. Mayer said he could note why they were converted to

are different charters. It was simply on necessarion of the mechanism of the instrument. Its distrement this by a har or ive of menne, obeying the abroot impossibility of the Engenlarying the notion. An regarded national, he said, so write always for a C chartest would cause an interaction amount of labour, and added this, from notitive of consecut, a charinet player often had only two instance of three instruments.

The Character repeated has inquiry, why a charact physic should tells a charact in B flat when the composition was in the key of C? Mr. Manus resided that a player preferred to play on one

Mr. Streams compared that Preference Markt had use table them the keys of the pieces to which the charinate referred to where used. If the pieces were written in extreme keys, he would like to not what indication there was at the communement of the encer that the encharted ports were to be kept for claricate of a Effects probing or was it left simply to the skill of the performer?

200 contacter and more thereaften which had been for we washed to be present, the deschi and if the question exceeds the present the contact and the question exceeds the present the contact and the cont

amongst transistants; and he suggested Black for strings and voices. Bed for house end deman, and Bloe for wood. Mr. H. C. Barryers and he understood Poulesce Mank in spenk against the one of the separate clef with regard in also seed heave renew. whereas he thanked the Preference meant the trails

Professor Moor coeffeel that when he make of the average elef of the first line he meant Do obt but he advocated the vocal quartet. With regard to what Mr. Murges had send, he perfectly indisequable, upless they made up their minds to do with the potes which were only to be predated on one of the three chartests, which was not to be completed. All he salvecated was, that the clariset part should always be written un the score on if it were for a C clarant. But he astropated a possible ablection on the part of the performer, and replied that be would been the perference provided with his part oractly as economic the creek morative to the employment of the G old in preprinted when Mr. Alfred Merodia commenced his cheep offices, and so it had gone on. He neight mention that some years any Mr. Alfred Novelles said to him, at the conclusion of a lecture be was delivering at the London Invitation, that if he recover close. With mound to the The close on the fact line has armed it was represented and it would be expedient to remove own newkeepee would lend ham always to use the Do shelt for the site and inner parts, if he had the opportunity of doing so. The very gost of his iden had been that they cought consulty to are the note to be resultated removement of its revolve ratch. whather replacible by any rules of the years consticte or by any secretor gave him credit for being able to use the three instru-Mr. Streets and it did not appear, from what Professor

Most between and it can not appear, man was reconstructed fook had said, that Chrushin gree easy redundron.

Profixer More replied that he would not be expected to write in the key of four sharps.

The Crumacar and Proficero Mosh had ready nationated the

objections which had been under, and they were very man indulated to Mr. Marrie for his practical illustration. The meeting then olded.

Warm 6

JOHN RULLAH, Esq., LLD., Vice-President, in the Orice.

ON SUANDARDS OF MUNICAL PRODU

By Da. W. H. Stone, P.B.C.P., M.A.

Dr. Second and he shid not retend to so fate the countries of any perioslar pileb, but sather to deal with the difficulties of longing to a pitch when it was abtented. This was a oraclast among of Jiffordty, methodachy to deskusters, where the wood sets the nevalor of vilvetones per mond, either by means of the sices or any other instrumes, was long and tedions; but in end taxing facks had been made to accordance with it which varied very little, and sould be profused in great murchers with considerable accuracy. Buch fortes therefore, formed a good. prectical standard for experimental are, because if you set two farks in otherwise the heats were charte moreubble. On the other hand, they had dandenotages. In the first place, the sound was very finish and evanously, and in the noise of an erchestra about impolible; bouldes which the bests, on scound stant he necessarious. Temperature nears afforded those forks for. There was a shight argument of heating usually recognitible between two of the sense witch arieins from defective workness. though the inference become greatly insersion." A usuary fore, then, was not absolutely accurate. Their connected time maght he reads more remaining by caritany it with a fields layer had with an ordinary lash-nitched forkyon monthy were ever the haw of the bow without producing creek effect. There was no deabte. better way which deserved to be tried, although he had not been

* Prompet Throughout showed that a fink giving table a our middle a at facility point distorted by the first of a comme when dyped in bodary surface. of principus. On pearing an intermittent excrevit through their year neight obtain a personate tone; hat it would require new to large it is pitch. Heinholts had succeeded in doing this, and it was no death sufficient fee the purposes of the physical colonies, hat for an orchastre, or for tasking an ongan, it was hardly possible the.

The next thing which suggested itself was the string, had stricus of cooms were entineably affected by temperature, even it has also in thickness, being swelled by massage, even that of a done hand. A violin strong therefore could never be for two on has one which thus had to be califorated very scenario, viole. He would now repeat an experiment which he knought some time ago before the Physical Sodiety of London, for showing the difference in the tone of strings count by various in tenparced through an insufficient conductor, the letter became seated according to definite laws: when a metal stong was area it of different metals, very nearly in nation, the heats being salv about one per second. Hat on causing a convent of elecnot only in pitch but in quality. The pitch varied very nearly are deleted in difference my one would have expected to some from such a compensatively alight variation in properators. result was alteriord with a boson strings; on reconfirm the experisank for he road an coture, a result which are marician be should n priors not have desired possible. It would be reconlected that note that any Mr. Buille, Hamilton, in a recorr real before the Society, described collect arrives which he had invented, and which appeared to passeus very velocitic properties, one bring that they suried very little in tame. Now by this resided of ando. The could string was found to vary very slightly in pitch,

ending herely half a freez. In visit streams that the problem is employed problem to deal with, beatine in small interments there was now of compressing addition makes in the interment of search and problem for the deal with, beatine in small interment of search and pully if it were motify expended with best, and then the whole interments became factories; in the way, when takes out to be delivation, they were factories to declarate in pich very mark, then the whole the problem is the delivation pich way and the delivation of th

the six particle through them, requisitly if it were the house hearth because resolved and the basin is approxime reasonable for the six particles of the six particles of the particle of long to physicistic conclusions entailed to gain. At interior the six particles of the particle of the particle of the contribution of the six particles of the particle of the whole the particle of the particle of the particle of the whole the particle of t

eou and rarefaction of the sar canced considerable charmening of barrange in ordinary cases that were planted with wind at ordinary temperatures; but effit as they all know, they were preselvences; posed to extraordinary variations—sumetimes falling as low as 25" and at others as high as 80"; the differences in pilely were very much greater than might have been expented. He had constructed a ample arcoming for the narrow of illustrators this effect. In opposited of a vocame believe, the six from which mased through trop vessels, to each of which was a spire! pine; one of the vessels contained see and the other bolking water, so that there was a tone in an event case was very remarkable. It was shown in the first gustance by present of a flar page, which being attached to the orifice whereas the six of 30° was lession and based in arr take, when the heats became very marked indeed. The same underwest a slightly different course, taking rether imager for nitinately. He attributed that to the fact that the upper part of the pipe knot coaler than in the open fire nipe. Xotal and mont of more defeated doublette to expect the paper and month ference is asiah caused by recolution was also shown in another way, by affixing a pepo to a processer in which budrages gas was solicated, when a total change both in patch and quality of tous

On Standards of Musical Pitch.

was at one satisfacile. Good regast insures were predictally overed this offers if the other of region and were shown control to the hands these models in which the window flowing that they were used where the control of the contro

only convenient to the tear, there there is a large within the form of the property of the tear of the property of the tear of the tear of the property of the content of the property of the content of the property of the content of the property of the tear of the half became wrater, as bright even the observation got were asked to half became wrater, as bright even the observation got were asked while recognity in the way the property of the

Read teatromanta followed a superplant different communities cause the relevatour read, the descenance of triash was an event. expanded agreemently, and therefore when in road condition there ceght not to vary much. As a matter of fact, the reeds in an organ were known by every organist to be extremely navaly. He believed, however, that much of the Maus suci on the recess to putting out of time was really due to the fine rives altering need more were sensitive to moreove more than the times, though not an scraffing to heat and cold, as he would show by experiment. hirwing the reed pipe and a fine pipe in union with her and cold air, and other transporter than. The infrared of maintains of by introducing into one of those gives a little oblocoform, which had a very heavy vapour, and cassed the tripe to mak in pilots. That experiment, however, he must sak them to take upon treet. His next observation would be upon asshed al instruments; he most. In ooki weather an ordinary lit obvious mask very considerably. He wont on one occurren to Kramton with the Wanderlas Mantrele during a server freet, buring to six outside the coach and carrying his instrument. When he went into the

A similar instead of the By the fact being that the outstain had lowered the instrument a full amilions. But when it was put before a manu fer it recovered its equationity. This was above, the members the role A ray and desired in some with a found-

.

2.

DIBCORNI

Mr. 10 Popport said host and maisture had a great a the catifest Dr. Store land so admirably brought before them, reposintly with regard to organ piper. He did not know whather Dr. House had more General Personnel Thomsessa's inconfigurations on the change in which of grown times and forder fiche by variations in conservative. He there described surfaciles after. tion to one point which Dr. Stone had not alluded to named that the effect of temperature on close of a high witch and a low catch was not the same; in fact, that the paper of high yitch removated in a look from the law. Probably the same thing weald apply to a smaller satest in tuning forks. He ofolds also mention that General Thompson devised an increases made aire consisting of hose and name the months of the olers by which this variation is true was one sid of He had notice in Dr. Stone's accomments that it was follows to some rate the effect fire to temperature from the effect of the believe, and this was a difficular which all accords experimentary constantly succentered. He should like to know, therefore, whether the common inverted rib believe was really found to be softciently accurate for these overeignosts, or whether some

additional nevergement might not be desirable for the purpose. He had constantly used harmonism reeds in constant of

absolute puzzl, and he thought they might be trusted for anything heard, and ther were easily manipulated. He had a little tening mechine in which he could out a number of reeds and its them to the exact pitch required, with the greatest once. He had haped to hear a little more about the determinantum of absolute wich, because ofter all, they could not abuye set the French pitch of harmonium reads, said southing which woulded them to count the total comber of beats between noise, constituting an accurately tamed raterval, would meet the difficulty. If you accurately have inserved, wome meet the discount. A your sand two sates to a major time (C-D), by making them percent fourth and \$6h to a Skind note (6); and then interrelated between them to many other notes that you could count the brate between each encountry unit, and then added all the beats together, a simple arithmeteral role pere you the algorithm putch of the C with considerable accuracy." The only these married, then was an instrument for observing the basis. The could be done to some extent with a residular arranged for the purpose; but he was constructive a metrocura, which he cabileted at the recent acted, though it was not yet quite Snished. He throught acceptance of that level word he the home

mesne, with a few harmousess reeds, they could always secure an shoolate pitch. De Scour said he agreed with eccepthing Mr. Housequet had etated, but he had not how while to go take the important coretion of the removation of the base from the training in covers.

Mr. Serrocce inquired in which director the difference took place. Was it in sharper or flatter the tone? If it were the

Mr. Bounday said it was found the small pipes were most affected, and became sharper. General Thompson oronized a somewhat more workship method than the can he had kunsell adopted for cetting over the difficulty; namely, as the variation followed very meanly the same law as thet acting from variations of temperature. It was nowible that the Afference between the the believe, if the other were so valued as an arrang ander an markly arrest of made

Mr. Sturgers asked of Mr. Humaquet had fermed may Mr. Strangers accord it Mr. Historical ball formed may

* The sum of all the bests that would be head in eight seconds in the

consisted solitons would rather have led one to entition that the

Mr. Becauser and be thought in cryss paper the six was the most material cames of the absorpt in puch. The whole question was very complicated, and very little as yet had been done to beloremore 3.7

done to determine it.*

Dr. Secon said that in No own experiments he had need a much larger reserveix of six than he had been able to hring-fown

rated larger reserveir of six than he had been able to bring-down for the peopless of the pressure paper.

Mr. Charrana and that if we start with therey-own wibrations for the larger C, we can serve have the F in perfect tase, because the ratio of F in the scale of C will not able wit. The

is also an objection to the French pitch; at the same time, it is meanly right.

Mr. Strragers asked why they could not take the French pitch and recken downwards.

pitch and recken downwards.

Mr. Charries and in that case we can notifier have the lower colores nor the C in perfect type.

the many water transmitters, are official forth of the first have prefer under the Francisco Fra

Mr Bonnequer said the objection amounted to this, that the French patch did not coincide with either of the observabilnishing represent

pitches proposed.

Mr. Character, and that for character is a high rate was at Mr. Character, pleas the which sught to be index we as a second by men, of winces in sufficient portion intentation. This are very most industrial page by Fersion men of season at the second by men, of winces in sufficient men of season at the private flow. The second men of the second men of

the econ, we cannot more any retay which would exactly agree with it. If we take 50 we can make he P quincids.

• Occard Thoughou when the effects the recessor densite to the reaching the state of the product of the

Mr. Boussurer mid he had no fear of fractions in these matters. What was required was practical convenience.

74

Mr. Crarvers soil it was not a question of fractions, but of second : fractions are deviable, but we cannot suffi a vibration into marts. The review will confirme, and non-considence crast 15125.

The Causain, in proposing a vote of blacks to Dr. Stone, said he never heard a lecture on sometice without being left in a viste of absolute astoniabosent that there could be any wowln to the world which was at all telerable. When one considered the rest difficulties there were to accordingly what was in tone and what was not, shoot which no two possis seemed to agree, be thought they could only repose that they got as near practical perfection as they did.

WILLIAM CHAPPELS, Esq., F.S.A., IN 1909 CRUM.

ON OUR PERCEPTION OF THE DESICTION OF A

By Load Bayment, M.A., F R S.

This is a special before the Society, I called to relate the relate societies of approximate I make but receives, with a view to unbring out how we dester to easily and personally I make a source of society, and personally the dissection of a source of society, and personally the dissection of a society of society, and the society of the society of

oppositions to the equal to the interest of the equal to the equal to

Now it is critical at case, that in the case of the car the same kind of manicarry is not applicable. When a seen speaks, the were length of the seands he produces is perhaps eight feet, and which would be many multiplier of night feet; in fact, the housest body as not hig counge to on for soond scrything first the same thing as the eye does for light. One must look therefore for the explosation of the possibility of stelling is what direction a small is, in an entirely delivered queries. It has long been explostance that the explosation of the efficiently was to be empty to the feet that we have two cars, and that we use the evidence derived from these to ever as the remaining containing the last of several feet.

much has been done litherto to briar thet view to the best of The first experiments I made were with the object of detereffected. As abserver with his even closed was about in the middle of a lawn, and several assistants moved round about him. and, speaking at ratervals, saled here to peed out where they were. We form! that this could be done after a little resultion We found also that it made very little difference whether the speaker was to the right or to the left, to freet or behind the hearer, who could in every case tell without any difficulty or uncertainty, within a little, from what quarter the sound proceeded. But there was some difference when the voice was used in an annahural manner. A very forced appeak or a mery great in the threat did not give so unfallfuls an indication, and when a low wheele was tried it was found that, although when it was to the right or left its multim sould be told with according a doubt would consiller arise whether it was in front or behind. This tended to show that the possibility of describing whether a nearest of samel was in front or behind depended in the case of the heigranalised into singular components. When a toping fork mented on a resonant how was tried, the abserver could tell at

once whiche it was in body as bolled. In a by the same within correspond the functions of the lock is able, never to yet a substanting result, it was recovery in middly the experience, the substanting result is the contribution of the contribution of the substanting the evidence guide contribution of the substanting the contribution of the cont

salvestile the finks, and then, it response to a signal, one cally was held over the resembler, an that the prime way, dured by the recition of the fork scald view up indication as to which side the enund come from. It was then found that the observe had so difficulty in detecting when the fork was on his was irreachately in front and the other fremulately labled, he scand was in front or behind him. The defenses was sa striking, almost any orbit was wore correct, in the other one was wealth not back your ourgion at all, and really felt that you were only guesting. The result was to some calent nangported. I had been of the experiment home treed with the brown wave. with the result that if was easy to distinguish whether a frund if, the difficulty is pather to explain how it in done in that case. than why it is not done with the twing-fack. When a signifisource of seard such as a tuning-fork is in front or behind, is tell from whome a course. The effect cores both ears must be almost reactly the many in both cases, because the sound of the tening-first is not espaid of being altered in quality when modified in this war. It can only be affected in Instrum and as you have no recent of keetwing what the neutral lendered to tell whether the origin of the sound is in front or behead. As to the embracion of how you tolk it when the voice is used. I our bordly office any contention. It is along that the fact of one affected alifes. But I have little doubt it must depend to some exwe know, so that we can detect with recursor very slight alterathose in its quality. But over so it is not over to prokentend how and since all ambient in the could's could access to account for the

possibility of distinguishing whether the second is an Irrad's included to the control of the second of the control in the control of the control of the control of the properties in a doubt plant to be an avered the second would have it made brade than the case for second them, and confided have it made brade than the case for size in the second would have it made brade than the case for size in the second would have it made to be an average of the control of the control would be reported by the control of the control of the control of the second of the control of the control of the presenced to the second of control that with the one which is to second or control of the c

The difference is the two positions is not very marked. I think most people who have tried it for me agree that they hear the grand action has when the even one is comed from then when it to terred temorie the sound but the difference is for no month. year marked. Such experiments are not racable of event acceracy, but theoretical considerations lead to the meno conclusion. We must remember that the leasan head is scatterly a sufficiently beam abstacle with subtion to the breath of redinary waves of sound, to throw anything like a complete county waves in many, or more acquiring and I made some calculations with reference to this particular post. Of owner, presideable, and these especiations referred to the effect of a rigid and first subset on a distant source of simula sound. It a rigid and fixed sphere, and therefore the calculations owner be strictly applicable to the case of the head has still then enght to give some indications of the kind of thise which would of sound the enterior use, and the most furthest removed the posterior cole, and the circle cultury between the two the equatorial circle, it is found that the intensity at the two poles and the ware length of the sound. Of course, when the solices and at the posteror pole sholf the scend would be very much weekened. At the agister pole-tennediately under the sworce been had there been no obstagle at the surge point, but the other is croke different when the uphore is small. In that one pathing even because there is more little difference of reterrity at the two pairs, the awarest of the vibralian being names as awast as The first care to which my calculations refer was that in

This lock due to Walk and a changeloss before two these on being of the wave, and it meet from that case that the same longly of the wave, and it meet from it had come that the same found of the attention pole was 03, at the appoints pole 23, and in the operation of pole 13, the intensity of the attention the time best hoppened in the case of the longli and the twenter, there would be no generalized yet a neutron to the longli and the twenter, there would be no generalized yet a neutron to the longli and the longcode of the difference, but that witness must if all properties to wave equal to the longli of the wave, the intensity in the instintor pole sings 03, as the particular longli in the long in the guarantee of the longli of the wave, the many of the longli of qualitating spee shall. One yet in a mean double heave, and to the length of the were of sound, the intensity immediately in the rear of the abstacle is greater than in the equatorial yn the rear of the assessment is greater than in the equational is reserved as carrier a checker, one would naturally expect the shadow to be most intense in the modile runter, whereas that was not the case. When the circumference of the sphere is only half once of the head the interactives, the exterior role was 20, as difference (hatteren 2) and 267 is only 10 per cent, and that would hardy be supposed to be enough to found the very delteate distraction noon. but even that exposition exaggerates the may of the head as aredied to all ordenery present rates. If the school two only helf as his .- that is to say, if the operations on were a quarter the length of the wave—the difference in intensity reachly for the difference to be recognized in the case of the two depends to some extent up the ratch of the note, that there would he many shaper of the difference occurring in a very high nate then with a very grave one; and I thought it worth while to try whether the facelty of distinguishing whether a sound is on one's wight on left had new tendency to discussor when the note was cracin. For that purpose I total the expensions I have

we as great officially in distinguishing factors the right of the first three of the right of th

only 120 vibrations in a second state of 256. When held over

Dr. Store mid every one must see the interest of the mioniations, because an actual definition of the amount of chatacle was a thire antique are. Then was one other emissions of the a ting states which he should like to ask Lord Repleigh if he had neverticated, namely, the function of the semanocottler canals which will the cookies formed important parts of the internal one, and which it had been generally supposed fareighed the means by which the direction of scend was determined. He had always found difficulty in explaining later thay did to, but on the other hand there were presume which made it appear as if they were intended for some such purpose, particularly the fact ti they stood namifel with the three dimensions of a solid body; though each had the function to take corrhesage of one streets of space. They contained a most claborate nervone apparatus. and one could not suppose they had no edges, whilst if the dutermination of fraction were not their object he had not the least idea what that object was. A very interesting question would be to find the mathematical element, which becar given. that function, but they had native salv done so. That was only speaking of one sar, but when you got to two the question was different, there was between them a possible very similar to that between the two eyes, and it was really hernize bow that maseles of the even to predace that motion by which we were enabled to yadge of the distance of skyrots. Probably the case did the same thing to a great cotest. There was also another would be a whold difference of time at which the sound reached

Mr. Scatter Turner and the substitute over come more to bim. experiments with only one ent. It would be possible to stop one our and make the observation with the other, and if a person.

Lord Harrings and this was a natural conding, but he could not give it a very satisfactory assesse. They had tried what results. Much more our by done with one our only than one could have exceeded if the are of both ours was the remarkal present of determination, but you could not tell as well with one our only se with both. With the pure sound of a tuning-firsk are might easily be decrived as to whether the sound was at the the case with the human voice. It was well-known that you coald not close the care with envilsing lifes completoness, though you could make one our deaf relatively to the other. In certainly seemed to him that one sould do more with one our closed than higherta held. With regard to De Stone's observations he was car passage was quite small in relation to the length of wave second as flowest to prevent the being scoothle for the direction of sound to be determined by noything maids the esc, because, whatever there mucht be made the can it would be affected in exactly the same was whether the sound come from one direction or enother. The only effect of scand was to produce in the did not understand how the car had now means of knowing what

He Striky Tarion asked of it were correct that a simple sound was much snow difficult of determination by a ringle our

of position of the external framework of the our maght excents similar diffragtere effect to be produced on the overtimes so as to observe an appropriate of the second, so that when the me, was referred removated to it the audity of the sound would be different to Level Reviewer thangen that was the sole possible view to

take. It was very difficult to understand how so one annall a diffraction would recolore much a creat affect Mr. Banavarry sold he had taken success excurres in the determine the source of annual. It was certainly possible to locate scends in a surprisingly exact moreor, though to was hardly re-Sigular note and become a great nates one; and he remarkered on observed on a framer of plans on a ways of stodied herein at the other end. In fact it was utterly impossible, notif you touched the object, to tell in the least dagree where the sound mans from What Lord Rayleigh said recent to afford some fraudation for a theory on this rulejost. As he had said, you could only calculate and without the state of the st

these represents.

The constraints and content that some of the higher relaxest to its higher relaxest to the higher constraints would, but the increase works would be been distinctly assail in representation to the given or work of the fact that had, and the present or the comparison to the content of the size of the content of the c

The CREEKER remerked that it penetrated through the Sustachism take into the mouth, as had been shown by Str Cherles

Whealstee.

Dr. Bruzer remarked that they had not haved anything about the pisses, which was a very powerful guiding expenses, on they could see us these floating the distinct which were in the lattle of duting what contained had best the power of clother lattle general to reset their cases insulinationly, in distinguish when a second cause from.

Mr. Bleataintee remarked that 9, would be interesting the

an industry teacher as well as an extension,

Direction of a Source of it absorve have for the perception was also be and whether the action of masters the his

and whether the action of moving the head fild not accompany the mental effect of determining the direction of the educal. About invariably, when he had thought of it, he had fraued high and moving his band, and it neemed as if one tried in which direction a sound appeared to be strongers, in order to determine

where it came from.

Let l'Arrana and great peut has been taken in his experiment that the best desired set in moved, but there was to receive the taken best in moved, but there was to exceed the control of the control of the first way. Then the specific was, whether the second of the following in freed or beliefs by order of the first that the letter of like at it is were travel varied through a right angle yes could discreminate it insendingly. The method was to term about wait by get fill here care difference, and the control of the cont

and when you were in much a position that the sound was asyour right of left, you have may confidely when it man. I wan, on the question by re-midgating the names in which vontilequate decired that an financial two man and that they could easier the sound come appropriate from our part they have.

make the round cape apparently from my part they liked.

Lord Haraness had never had my apportunity of observing
the phremmon, but the explication has led round was that they
have been approached the installed the

many operation on entering the landphaldits.

Dis those and this via on. In this development of great along.

Dis those and this via on. In this development is created the relation to the operation of the contract of the c

sound was almost destroyed. He did not know that ventralsquizat ever performed in the open air.

Me Broat TAILE said there was so tall experiences in which a sound in board more namely than in the nationary way, sensity,

_

94 On our Precipion of the Direction of a Source of Sound.

between the tests, when a hiew on the poler counsed like a

continuous are flore received in the relief which had content to be flored, as charter the content of the measurement of the content of the relief between the content of the content of the relief between the content of the relief between the content to approximate the content to the production of the content to the production of the content to the c

All Recognition and he had been raising some experiences with use of Excepting being testing-levels, so like finited the homostice of the ordinary such away produced by them with an exaction of the ordinary such away produced by them with an Exception of the American condition of the produced by the forks employed by Level Rechtigh, but it might will be the case that level finite grid to the thorus suits have produced notes of a leep first principal (10) the thorus suits have produced notes of correlations of the direction. Be was admitted, but described to the confirmation of the correlation of the direction. Be was admitted, but do the ordinary that the correlation of the direction of the correlation of the direction of the correlation of the

Lord RATEFOR said it was difficult to be sure that you had settedy purified a tone from its barmonion, but the mode he had

completed was the mean perfect horson. He produced and absent of the mediance a resonator, which was about to be included in the Exhibition at Scott Kornington, constructed for heaving convenses, the prick of which might be attacked from one harmonic to method by a movement of the fragree, is fished when a night most was sounded on on internant giving a highly compound mount, the super tense could be eastly about 10 yelling the piths of the resonator.

Mr. Dixingger and this experience had been performed with stopped copin pipes, and he much a Konight toning-five princip 100 death witherteen. With a disc on the seed of a fork year could have the first seem correction quite fastingly—up to this harmonic 7th. The litera was very strong, paths enforcingly no to produce a seculable effect on the quality-of the test. The 15th was not so strong. An ordinary first when struck pare to this nar ware the effect of the extern than of the frankangeoid access.

was not so strong. An ordinary first when stronk gars to his surners the effect of the celere than of the fundamental notes. The Granuars and See Charles Wassetton's secondary the produced two celeves to repid reconston by study morang the filte and attribute the wife-lanes, or a stellar note at the soil.

ALEXANDER JOHN ELLIR, Est., BA, FRS., FS.A., 10 Ter Chair.

ON THE MUSICAL INVENTIONS AND DISCOVERIES OF THE LATE SIE CHARLES WHEATSTONE, P. 2.5. By Partners William Greats Armer P.R.S.

This work of the late for Chrish-Washinken was very restal in themson, was been to finded to one, or were two, of the bannels on eye was two, of the bannels on the configuration of the late of of the l

smart observation as more ton gasacity attempt to review a past of this work on sensel, and the receipt attempt to review a past of this work on sensel, and the retains to aware. I therefore propose to devote negarify principally to one specially breach of their work, or which he aughinoid to made of vibration, and the resonance of nather and columns of vite, and ecovaried for the definited quadriss of tase of various site, and ecovaried for the definited quadriss of tase of various

restant and the intermental to the control of the control of the operation of the control of the

seed a the middle more whethere. So that, if we place in some pipe, a fine in the middle is form a expectation between pages after in the middle is formed as a special to between the end--and we get the same rate produced. The state of the sind--and is reparation to these diagrams, related to the same that is reparated to the diagrams, related to density it the rate is general from an interest of presents at mostle the control, then the preticion are interest of presents and control it the control is general from an interest of presents and their protect than at large other part, but in a change of density at their protect than at large other part, but in a change of density at that no change of presents, and dense we have an include.

Three are several ways of exciting valentions of air in taken; one is by means of a must edge, as in the our of a emploid sharp edge, and the tane unclosed will depend on the distance of the elemp odge from the opening, as well as on the length and here In the case of the obee and bearens, the real resembles the action of the lips. Only those effections are smited which take to the other, or in the closed take down it and back again : cover to the extreme limit on both sides and returning to the mention of real against he branch of the ware which will have of the area take, or four feet. From such a pape to intermediate sounds and be replaced. If I take, for instance, this pipe, there if is too sharp to re-mond to it. But if I take a stop which corresponds to the first, then we get the restaures so we did in the other case. The same way he shows with a closed once were We can get the fundamental note of the pine, and by altering parts, which are represented on the diagram, thus making as if stend of two and in fact any comber. We may increase by

1. 2. 3. or 6. and my red concepts vibrations divides: the take

up to lengthe of one-half one-tired, sue-fourth, one-fifth, and an on, end got notes with numbers of vibrations, or in those ratios. Suppere, for instance, we take a pipe rounding OC and divide it into three carts, we shall get two notes related to one another, ber of the other in the same time. There we get the 12th, the 3rd on the harmonic screen, and the double octors where the demonstal rates. We can see these are the divisions were maddle by means of an error was, where, at the socilism of the node in the first case, we have a gas let, and at the position of the nodes When these are lighted, you will see how the pressare is aftered according to the note which is sounded. When the fundamental is produced there is very little alteration in the processes at the two outside points, but the one in the centre would no not will'st whom the actors is smouled the recoveralteration of versions at the middle. Consumpative as the altereturn of presence will affect the mar fame when the outure in consoled, the gas fixes will go out of the two ends, and so the

matter how will not a shredning and the most? Of the property of the Charles Williams shared, by more of creation when the control of the Charles Williams shared, by more of the property of the control of the control

tree to in stand fastisately at any distance. If we spice is could price of three-operations the legisle of the III was upon a south price of three-operations and in the control of the standard of three-operators of the longity great the standard of three-operators of the longity of the standard of three-operators of the longity of the standard of the standard of three-operators of the longity of the standard of the standa

weak account in part for the difference in quality of tone prodated from those stope. In the case of the cirries, the vitra-

when the tope is produced in the same size from the over end.

and the same would be the case as all seed matramonic where the Vibrations may be excited in octorize of sir by means of gas.

This also was intentioned by Sir Charles Wheatstone power than 40 years ero, and he found that, newsided the forme were of suitoble size, then the note of the tabe could be produced when the flatte was quite at the end of the tabe, if it was not too keep,

and that so the flame in passed up the take it could be more and mary carrier excited until the resilien of the reds is reached. In Sussetal, but some harmonay. Here is an accurate for preduring these times, and if the gas flace could be writched in a mirror, it would be soon that the gas almost goes out et each relation of the sir. Sir Charles Wheelstens found that on removing the gas set name to a node to the take, the intentity of

size of the fame in order to produce it. The note was produced with the smallest flame of the and of the take, and it could be He need very short takes, so as to assid the harmonics which by Skr Charles Wheatstone of this description. There was a stenseeler, of takes of different lengths, and gas fiscure which might be raised to the revene point by money of kern like a piane

be played by that instrument. He remarks that it is probable by floures of hydrogen gas reight be substituted for the organ

seasing presier power in crescreton and disappeados then any we are at meant acqueinted with About three works ago I sew in the Their thet there had been a moving of scientific men in contrament which had been introduced as a new invention. where gas flores were gode use of to excit the taken

If tasted of taking oplindroal takes, we make use of oreiexcession of harmoniou which may be preduced from such takes will be the supe as the exposurion from ones crimdoon, teles of the same length. Those from the orthodoxed open pape, and this other closed come, we get the same note produced to responds to the same terror, but. If we take a rose which is

when the star of the stars only probable a from the original of the original of the star of the star

In such a coulcal pipe we may expect to get the man harmowine as in the case of open cylindrical digor Professor Adona then, showed a number of ocalcal times fating one into the other, and the made in which the vibrations took phase is each paper which were classified by a diagram. pointing out particularly that as you approached the easy of the section, wetd at the sail the nodel free was found at the accu-He then continued as follows The greater the difference between the discreters of the two cade of the conjust taken, the greater will be the difference between the notes contained and the note of the highest pitch will be produced when the own and in the bornest of the two. If the own and is four times the finesster of the smallest can, then the rote weakered in an estano below able to rendere two colors. Here we seem of the warm reads not of he fire Charles Wheatstone to his experiments on ones. dursing the different intervals between two rotes. The production of different barwaring of conicol takes may be illestrated in a more pleasant war, as follows -- Dr. Stone has kindly ourseated to illustrate this fact by giving the different barmonies with the same fingering on the controllaritto. The one great shiped in transcal instruments generally in to avoid beautiff a mentage of notes, and with the electron percent it in not possible to produce barragoics. With this instrument, however, Dr. Birge ment as a weeken come. It discounts surfacely for Charles Whentstane's statement with revenit to control office, and shows

90 On the Musical Secretions and Discouries of the

that the harmonics are the same as those obtained from a cylin-

The server was the striped point of shall be the label be the server of the server product. One point was sufficient, the server product, the server product, the server product point and the large was sufficient to the server product and the large was sufficient to the server of the server product product to the server was the server product to the s

wanted that with a view in the power points in.

There is now other point which has a file or relation is the
Three is now other point which has a file or relationship to
transmission of round about pade of word, or other materials,
and it is will flower; that the Checker Windowsteen issued issue,
reportments of their living, counseling is metal instrument in cerone with the six-ording-horized or entather instrument is mostly
aroun; and although the instruments neighb to of affiliwate limits
—derivations, a climate of larger stands for the six-ordinal-doubted of a

—derivation, a fluori er kary-intakelt in the samb konel de junisar-ell the objernet in har ver gelege het he samb konel de har julisar-ell the objernet in het kein der kary make till salternost, daring the translation of samb though whet may be somet, daring the translation of samb though whet may be contilated by the same that the same to be a same to be a same to be lost and very it my essenting in flowed, which will it as consiste sound could! — [18]. These it inside to be not over it up, and consistent in consummation with it. As some, however, it links or constitute in the same in the same to be a simple grand of work or as it is touch it, the some in definantly heart. This there she clear height of the temporary large and the contact in the same in the same in a same to the same in as we in touch it, the sum is offered plant. This there she direct points of the same in definantly heart. This there she direct in history of the same in a fallent plant.

spaken of by the lecturer were those brought forward by the Charles Wieststern.

Profusor Assum region that the opinarized pipes, the restine tion the size from the each towards the relatio, and at the assum tions from the middle towards the each classic Whitehead of the contract of the region of the contract of the c

or admitted our modification which might afterwards come forward. Of course, anything be configured to maintain had much in its favour, and not round of faconglet to be very semestly con-sidered and not health and saids. At the saids of this days, Charles Wheatstone, when he was astorished at several thirty which fell from him. Amongst other things, he considered that Belinholts was all wrong, and that the problem of the resonance or tooks was so to correct on the principle which he discovered cours before, and dissorbed under the same of reciprocation. He had some difficulty in fadior the papers referred to by Sir Charles Whetstone, they being mostly in the piecess of the Scool Institution about the recent little and 1976 has be had a final of consideration. This was a noint which seemed to rereinferring vibrations having multiple pariods in pipes and was that of the remotable experience which had just been was a very different theat. No doubt it was nealogues to a enclosed between two wars of early' as that it was more from a harmonium reed. It was credt clear there would be some deviation from the semolo lev of module of a vibration solds under they could ribrete in occases and twelfthe. As he had men,

On the Musical Inscribers and Discounting of the

large first of Euricky, restriction is need acceptions as these energy by presenting it in the matter devaded component of the contract of earther contract of the contract of the contract of the contract of the possibility of a dead. The quarties was, that the planes of the contract o

Mr. William Charriel remarked that Sir Cherles Wheatsteen, in his papers, suit that he had cande the experiments with a boring-free in well as with a yee hatey. He had a perfect received no of that, because Sir Charles had cedered one to be read the two which would be above as the International Exhibi-

stem of Sensordia Internancia. The Canada Sensordia Wandsteiner. The Canada and les was reading 78 to Dande Mandsteiner. The Canada and les was readed but not store the restrated Part Chappell interpreted to mean that he had treat the restrated Part Chappell interpreted to mean that he had treat the report of the ready of the reading the sensors with prest made, he could not note by the mode in the whole the ready was the ready and the ready and the ready of the ready

Professor Accuss thought, from the Charles Wheateston's page, that he had lessel the experiment with a luxing fort, but it would be very one to do so, although he had on a fast; who have submoredly large to dry the experiment properly, the lowest he had being a middle O, which ma a long way above the lesse of the provisions. But Charles Wheatestone proposed to him. But Charles and the contract of the contract o

Mr. CALTERLA said Sir. Chacks: Whentstone prepared to him to try sincials counts to make the second more souldie, see the theoryforce he presumed at countle he produced in any way. He knowled had said had laise or the nonventiones for trying it, just be thought that anything which would not do sir it a whrestone as the mental of the table would produce the same effect.

The way he had not to week was to take various one come compling to the pitch of the large fack he had epoken of our of an orego, and by there side by adapta a table. He made the shapes two bines? with Mr. Percett of Manfales and they of the ex, they could have distractly up to the arreath knownesse. The terror was exceedingly strong, and could be heard pistuly without a disc

Professor Attacks sould be had noticed in this ability take that the add harmonics were much stronger than the even pass The Coursesy saked what was the emplitude of wheating of the fork med by Mr. Bossequet?

Mr. Box worry. About a third of an inch.

Mr. W. W. Parkinson, in writing to him recently, stated that he had got bests from two taxing forts a 18h agent. He did not know whether he had taken means to get red of any conditional tone, so that he could be quite sure there were two Mr. Bassequet prestinged, there would be no difficulty in certifice hosts with the intervel of a fifth. This was evidently a case which required very states renastantion

Mr. Housepony said by for the greatest series of experiments in this direction were those properted in a paper by Koway on the last regular of Ponsonforf. He appeared to be fully sales. has recent than it was write impressible to produce a way streets

Mr. Las Souvenars, referring to the confug fames, sold Kostner had made on instrument, to which he gave the rease of Percebone, hy which reacted notes could be abstraced from a

dix to his translatus of Helmholts. The peculiarity of it was together ay expansio. It was tried at the Section of Arts, but it was found automoby difficult to get it in term, and the result was not very estellatory. It was also shawn at the Rocal Institution, but there there was not splicious gas, and they could JOHN HULLAH, Esq. LLD, or tax Coats

ON MEDICAL SCIENCE IN RELATION TO THE VOICE

AS A SUSPILAL DISTRIBUTION.

By Lasons Burrys, FR.CS. Edin.,

Hon, Surgeon and Azral Surgeon to the Royal Society of Mosiniana, Surgeon to Her Majordy's Ballan Opens, do.

The triplest which I here chosen for the condensation of the Manial Association presents in the root case illustrates or than Manial Association presents in the root case illustrates of the Manial Association presents in the root of the Manial Original Conference in Manial Conferen

come use jumpe to which a level just top teach.

If you want to be a second of the property of

wide ground, and I will therefore, without facilier profess, proceed to consider, rety lettle it its male, some of the principal points affired for our spine. They are— It. The three of mensoal sound bearing on the question to be discussed.

If the comman of human roles combining to form a quasical

memored

2. The organs of human voice continuing to form a number instrument, with the vactions functions of each organ

3. The rannagement of those parts goder control of the vocale. A. The defeats pressioned by reignespapers and

Lastly, such directions of hydroge as may apply to all who Mancal sound is produced by communication to the suditory with a sufficient rapidity of accession, the regularity of the

intervals distinguished it from noise, which is no inversion reqconien of sonocens shacks The pitch of a masteri note depends salely on the names of

vibradians concerned in its production, the more rapid the vibratam the busher home the retch to the nir is too small to be perceived as sound, even at a small

distance from the string. Hence, when chines are surflored as of larger area, which take up their schretures and transfer them to the surrounding sir-in other words, hy a sound-board or box. The tender or enalty of a sound depends almost wholly on the

The best of vibrations of stringed interments bearing on on the women of investmentary or shurtenance of the strong, secondly on the tension or relaxation of the shings thirdly, on the variations in the thickness of the string; and lastly, on the density of the string that is to say, the shorter, the tighter the four and

When we come to read instruments or read pipes, the read or torses taken the visce of the string so for as the assembles of

arbiert will recordly be ruck aridest cebrn. I need not, however, say that there are many other laws

of the value. Int me define so clearly so we can what is this value. Well it is a apprecial releasing or same of releasing resolated

reeds or cords thand in that size, the consument masical

On Martinal Patrons to Publisher

conds or roles issuing by certain eagals and passages of varying

of the end length. Speaks now is composed of the articulation or formation into indices and weeks of these measures vibrations. This articulation is produced by posite in on very connected with the production of sensel, such by parts phosed opins at the point of eart of that somed, in fact, by the flop, sought, and such points the sub-paints being the teackwork borockery of extinculation. How are analyse were different product only that it is on.

thing or singular room (afters from speech only list. It is a higher development of the same power. It consists in the verition and medials for of the emitted sounds. According to the musicina, it is the finally of producing by masses of the votes all the notes of the different mention and

pravious, it is the faculty of productor by means of the voice of the notes of the different prescoul scales. Beethoren frequently treated the roise as a monitol instranged, prospection of the exposures of words. This is esternilled in the Chard Symptons and Farture. Some singers propositionally treat the voice in the same way he entirely neglecting or by elerring the orderalation of their words; but in general acceptation singing implies expectation of words othered on the various remired water. It was be seed that the reverof the order is exhibited in recourting as the heavy is struck college rither the historians or differences between search and coper. Musical integration is as necessary to the former as the letter, so much so that, as Professor Hullah well pain it in his affairsthic lectures on the Specima Franc, that which is officefirely and agreeably said most be (pertially) sons. We all know this by experience when my cay that such or such on creater has a reasonal vator. Surcer Salvigi to a striking exemple so beentifully true and familie is it. Itsisen regulative is not

as constituy free that recises in it. Italian recitizes in no much more than impressioned purifics speaking.
For the complete development of the power of conveying

with a stretcheror is now many quiff forms are nonemary, with only some of which can be now do.

If it only with volue production that we are not concerned, and it is now deposit to consider the we are now concerned, and it is now deposit to consider the way to assembly active forming the ware may be no produced as a silver the strape to retain to binaried the power to express on them again eachers he may with. For the right nethrotoching of this matter we make those at the formering of the post to concerned, and and deleverer to

took for each part as experiences as teaser was, we man to come consistency of the anatomy and physiology of the wood control of the read apparatus way to conveniently distribut into fire parts. They are parently distribut into only four, ...

1. The barge or buildow:

2. The tackets or windships, courving air to—

the Force or a Marioti Instrument. 97

3. The largest or voice-box, in which are situated the vocal conductor tends.

4. The variable unitity, being that portion above the vicehor to the soft painter called the phisyme, so well so the meal pensages, the latter common to some extent also to— 5. The astimulating energy, comprising that portion from the

— non-measuring energy, comprising time portion from the soft palace to the bigs, whereas the neural is consisted. [Shart announced description of the various parts outlined. The reader may be referred for such unforceding, to Professor Harder's or any other Manual of Physicians.]

The resident may be referred for such information to Professor Heating's or may either Managal of Physiology.] Your is produced by whereing of the vocal cooks caused by the passage of air divines from the lange. The first desidentian therefore, for eating poduction in its here is believe full of our

the pursage of an element from the large. The first destination therefore, for extens production is to here a believe full of an expension of the second technique full of an expension the white extra destination of the expension of the second technique and the expension of the second technique full of the expension of the expen

ders and these wall of this remain memored

2. By pressing the large outwards against the more or less shadin frame roots of the vine. In this method sho the upper

where the state of the rest. It is noticed the the stay of the property of the collections of the property of the pr

con worker any condition of halds.

Which the suppression should be an gradual and an improvement has a possible, so that if seed not be reported more frequently than in absolutely scottary. The expression should not be varietly, processory. The expression should not be varietly, processory that the suppression should not be varietly, processory that the suppression should not be varietly, processory.

need not be required more frequently than in stocked of the ray. The expression should not be wrated, picky, or in garps, but steady and gradual; for it us on the extremes with regularity of equivation after the expression that depends the replication, and the viendings of versal without on. And have it may be remeried as the result of the results of the remeried of the remeried

percent with continuous effect were the recal present. Hence, enhangible surgly of breath. The method of resouration I have indicated as the interes, and therefore the best, was the one teaght secrets day as then, but the ert of furnish a solid basis of water by long exercise on a right method of breeth-taking seems to be at your had no if not but is residuable. Forming the come of placing the voice, means nothing more than precitie of scales or a right method. To attempt firstly records before such regular has been thoroughly cerried out is an fuffices to effect to draw from the Hear to colour before one can make straight and so lines in black and white. It is actorishing how preservemore or e naturally poor evens. I could surgion the invitage of two years ledies who made their obtain but your on the London Italien stars. wast difficult waste with such year precision and accuracy as to less not been goods pages flexible by the practice of simple scale enging betwee spars, was altempted. I westers to those that more cover has been assured total in reced instruction and more twosuitaining penaced the vacor depend on a good method of brettletaking and endange. When it is considered that the Consurertoins of Mexic of Periot teacher that it is recourse to breathe differently for eigether than for speech, it is not to be wandered at that the veices of Preach elapery become so often trembling

• The develope of Report Genera for a mager to procious has relevant to the lighted could be here the search is known to many. If the flame is estimated and the relevant to the long reported, and the light of t

Clear de Chamberloire de Allempre . 2 Copies debeus ancelheinig that 2 herre required is most transporter. 2 Copies debeus ancelheinig that 2 herre required in most transporter the belief obtainst of any proper clinic appeared in the delay piece, reconstit ser eat were the remarks to 2 for spice of the tandaling is a replace Conversions on the Christonia lower that these years of resis and moderal tensionals della State of the contract of the

The id carried from the large by the workpipe (which we shall proceedly see in such a reson passer trub) implies against the wood orest, which not no restrict tangens, and firstle the six tanta number of grade or explosions. The sense of numerical notes that produced vary in pitch, atomsting to most writers, only as these codes not tightened or relateral on no to vary the configuration of the space between them, called the glottin, and throwly to modify the character of the relations.

are carried into a very variable covity, the pheryon. This varihis cavity is not only, as is generally taught, a sumple recom hon, hat it clean, in my spinion, a very important part in the hon, but it plays, in my opinion, a very important part in the autoal alternation of mitch. The formation of notes into artificulate and shartening limit, of expension and occupression, that is only with the organic of votce or their extreme mobilety and variable causable, and, it may be added, their matual inter-depend intendity of the vibration of the year cords. It is in a great tent or witch of the voice depends. This much is admitted; but the tube that perpire the air from the lange to the vocal cords has a power to modify the witce as has that cooling of the take above the coods before it arrives at the count where articulation buries. These are facts on which I wish surficularly to dwell, because I think they are not sufficiently considered by these occurred in fice, of pileh in the busines voice—a variation of from two to three, two others, three octaves and a half of years ... designed solely on an unch loog, which, us the care of a man, have a power of alteratoo in length of cale can cart of an each between their blakest they one sighth of an inch. Between these two cycle is a state ... the separation of the vocal bunds; and it is these different power of tention and relaxation, which, my physiologists, deter-

tokes the pitch of the votor. Dr. Manch, a physician devoting below. This hely way according suggests than a kind of displacements again mobjes would not only storage the supportary organ, or their major with blanded in those administration and of the proper is Nerth, and their best special positions and the proper in the Nerth and their best stays relative in the conduction of this concept, nonestrational, and the proper stay of the principal positions and or written great and of warding as the proper district in particular their proper stay of the principal position and the relative proper stay of the principal position and proper stay of the relative proper stay of the principal position and principal position and principal position and proper stay of the principal position and principal position a

I make a polymer for I have not some that versalizes in the shapes of the shape of

• I to see Engrit in making the enterest due Engra Oradia, it is in an entry remnancement on the Depth Security Processor, 2014 Vol. 20, 114, 1960, cone in the encodement of the treatment of the encodement o

The experiences of Securi long agreemed that a take of con-The analogy between such a take and the trucken in perfect. The wanderge mannet shorten or legaritien to now your great extent. accompanies to so remarkable an orders the elevation of the titlehof the value, a movement which Dr. Mandl would have us believe religion of the variation in territor of a take to a few read, and which the reed being once set in motion by sir from the month. produces one steady beer sound. The variation of sprade is prodepend wheely in properties on the skill and will of the perfequent volumes of six calculated to vibrate the different amblindes of the printer bee round. This influence of the tabe is by experiment forms to be the same, whether the tube is placed after the reed, rocal orosas. By my sheerystons a very mucher these takes place above the larvax as below it. When one looks at the youal organ by mean of the increspences, the note 'ah 'being the tabe above the youl condrivingshound. Then let the person afanon out of sick. The tale is shortened with the elevation of witch. But also the soft palete is upoused, back assignt the back wall of the phorpur, so that the take in distribut still further calling of the chargement take in culcions or discussion for our have seen to be the case with the windsized by the notice of the to enforcing the La well Assessing, management as a commercial affect. of mesoning the taxons that he flood the speciation to be followed. by the mining of the roise helf an octore. This I can reading believe, because the pressure of these enlarged stands so were much eliminished the course of the observer to modify the higher notes. For the completion of those who suffer from enknowed togetle, and are deterred from having them received by four of

* See the interesting paper of Professor Grytle Adeas in the preservables, pp. 54 of eq.

the voice being injured, it may be mentioned that many of our greatest singers, from Michane Publi downwards, have an irrepose the aperation with the greatest constant to the market and with the result of increasing rether than of designations the sense of

I am well aware that I have left altegether untouched many the recision power of the impliredory paperles to control the exit of the air from the large, and the infocuos of the ventricles of the largest in occarolling both the extrance and rolt of ar in the glottie. I have been obliged to pass over interestion rounds as the difference between roals and female voices as well at the varieties of voice known as tence, bardon, and bear ecersio, meno-scenno, and contralio. A matter on which more knowledge is growly wanted in the cause of the newer to make from one resistance of it couldn't to enother without a break. One of the reast noteworky flore concernier the became years as a exercise) responses in the suppositions named which it possesses to evidenced in the voices of the Orientals * and the New Zealanders mindactorily solved. Severy Garen thenks that "the line of the gistes (vocal cords) come to contact by their odges alone, and offer little resistance to the sir, bence arises the great loss of ties ersening the production of the falestic for two rescons One is that the epiglattic always rises as soon as formation of such notes is attempted, drewing up with it the larger, so as to very frequently almost the image in the larrageal mirror. Me observation on this point is spacify contrary to that of Shwar Garcia, who may that 'every time the applicit's lowers that, and nearly closes the crifice of the larges, the vace gazaris brillancy. and when, on the other knnd, it is drawn no the value becomes inexadiately willed. Another reason why is to different to see in the sulk raisin accessary to see the largest appears to interfere duction of these notes. I have not been able, by neural observafire, to confirm or, indeed, to contradict Street Garcia's theory fixed to discour say appropriate difference in the upp-

of the recal cords

[It may be interesting to quote some remarks on this subject.

* This private is returned to be the Rev. for these Caustre in his rese.

of Mr. Here Becree, in a letter he dh) are the honest to write stace this paper was road. He engagests "that the fallects the a false sade reads by fitte players, it is, as it wen, cetaids the tone. The same with relativists when they make the harmonic conclusion.

These best stated for a presenting of the resourcing of the total and on the same. The conflict is stated in a wrong order down and on the same of the conflict is stated in a wrong order driven landson the pumps is being from the basic of the conflict interest, and on the interest is stated in the same of the conflict interest in the conflict i

offer in a medical sense, it has been the means of making all theorem of weednotion of vame too dependent on the varal scede. and that the imperionce of the other parts of the vocal apparatus in their astual inference on the nitch has been correlated. It is therefore impossible to say that the veice is this musical instrument or that. It has been at various times treated as a wind restricted. Efforts to make an artificial hower years on any one separate principle have sevally faded; witness the re-called one somers stop of the organ, or the attempts of Meller and Helcoholts to include the major by mores of heads of india-orbhes placed in appointion at one and of a place tobe. Many usual rates inscelle; while, in the higher remoter, the instrument which Putti is the over with double flate accommunicated in the but not of L'Etolic du Nord, or to Six Jolius Benefict's heady composition, 'The herd that came in spring,' with similar accounamenant to appropriate what I mean. Not that I would made other metruments to which it has been blowed. It is probably a contrasticu of all To each sawn Preferer Hallah; 'The you the conjecture. Partially and equaletelity in the New Act only to conference and deliminating the site of the conference and deliminating the site of the conference and deliminating the site of the conference of the site o

vego, heving het by disease his rocal cards; and so American physicise has published how he cristically constructed a votal of less of noise a top fashio covered of tir to come according vibration of the cords inflammatory conditions of the cords were vertice their appropriately or elasticity, a disordered state of of the more oppose of disease which more set oppositely or in combination to destroy or wealers the voice; but, setting disease saids, I contere to ear that three-fearths at least of the professtonal voice using people, ologyrace, hardstern vocalists, and voice undireties, and that more of the most common of the discused conditions are don to this cause. Although it is most solders it is reconserver or once, individual to treat the discuss colv or et all locally. In official, therefore, a few suspections as to the hygiseic management of the voice, it is measure to direct attacking to management of the voice, it is measured to direct attacking to make the contribution of the granting. One hours of this learness or that smooth or serves as a maintenal manages for all the treakles to which conduct are enbicet. I am soon to see that signing masters not polysoperative orr in this respect, and prescribe for their gapph remofus of which they there are many married over their friends reveloper for totally diff. forms diseased coefficient. I shall not be surround if streets

to firm so berris sod, it is simply because I know of none.

Remarks on the general modified management of the vision mass be brief for two reasons: first, for went of space; and,

[•] Elem had neithern rade of, I think, every validity of patent visio leading. There is all our field has not contain once or has Openery peper or que this relation, not find to a go consistently blanch. I had the opportunity of discovering any convotion with some housing blanch of the containing the same is any one. However, with day may be a branch of the problem, they would save a re-branched system;

the Fairs or a Musical Justinesed.

mental and the second process of the second

plained by the state of the horseness.

All who we have your should, then, good comfully their enter when when your should, then, good comfully their extensed hothly on setting that not veragenessly proletifies which go someting presents to good view, it may be said that, as a simple master of legister, practice of the required process, and a significant conditions to the their enterpresent contracts, on a right method, but is dropp commitmed, each as sampling implies, in others of the greatest service in the vertical the locality of the human.

yer ong ue neith of the large.

The stages wheeld not be straid of six, but he should would not change of wheel not be straid of six, but he should not himself be himself be should be himself, but higher of find must sently disputed and free from the himself, but should be straight of the straight of

• Do a responsible to see how much manifeld that how do not not be abundanced associated with some of the response relationated the content of the response relationated the present of the part of the present of the part of the present of the part of the part of the present of the part of the present of the part of

with voice projections, he should sing when the find is directed and the stomach is of least ownerity and therefore least black to

waklin or ormour, and so intervel of at least an hour should occur before practice. In like manner the garments of both male

except on the recent considers, the extreme limit of the voice should never be ettempted, for it is certain that, not only is it most inverses medically to sing always at fell vaice, but that the excepted pleasure in overs, by those values which seem to have a the houses name feels that the mechanism is going to fail. It is affect must admired too, it is the deeper trions that appender must

It is the marician's rather than the doctor's date to point out

one needed starting. These must be additive to interpret againpersuspenses to everyone them. Without such analitications. however marvellons the notness beauty of the organ, its presentor will be anable to prevent her heavus from feeling that there is

The Courses said he should be glad to know whether the speaking or of the singing voice, after the loss of the vocal cords He could not concern hear the marker were could exist ander

Associates with repose to the size of personants. Let me, before to do without them a size of A glyceness forming to preferable, on very more commands a small quantity of chart and water may be accounty. hat of planticle streethers are detreased. I formedy not be soonly, and before the that we not become aporting of a title, the sector might for the tool, but a page changes togother thous, and produces more solves from an economy, and misses the drawn to resolve a Dar.

Justineers, 100

Mr. Larrer Bearrers and he believed it was the specific value for had never some and a const limited. Since yet leave a consequent of the second of the seco

Dr. Venneuer said he should be very glad if Mr. Bowno could three some light on the way in whoth his felectic said the natural voice blanked. If was a matter of great difficulty to the of these two votces.

The Carapter said he thought the great difficulty saves from

the impossibility of noting the parts in operation, so had been necessarily Mr. Bovern, and the slight obstages in the public of the road apparation during the two modes of protocour. Protocour Mant, and he malerated from Mr. Bovern that the pressure of the manusc of the foregroups applied part of the

serving reversion to the proposition on the minimal vector.

The Cumman will there were early these underlies of voltage there being one between what was commonly called the 'chiest wase,' and the 'dishester.' The 'Precede recognition that is a spacking,' and the 'first, second, soci therd segation, only as much with reference to the composition and to the readers in which the voltage were produced. Some identical codes might be preduced in three different ways. Mr. Wiggingers mid-like augment the finderic writer must be

me. w mandest sold he supplied the Shelde wife must be considered extintly unsatural.

Mr. Course sold of its were not possible that the fabulte was produced by the opplied a falling, because there was so much less

offert in producing a filtente code.

The Christian thought the fallente was not always introduced with less offert then the other register. It right be to some clear just in a consider-less ranger it was, to a great satisful, the results of precises. A constant size, generally speaking, would be an indifferent less who had cultivated the filtente register.

amond statistics.

M. Waterston and a testhe reter might be precised up the M. Waterston and extenses in statis the high states, in an account of time, and extenses in statis the high states, in an account of time, to produce an allowater the high states, and account of time, to produce and allowater is low who restated his trailer with the produce of the states and the produce and the high states are hey who restated his trailer value up to 0, or were 4, and of good quality, and the rule reter as taken hy well formed. This he could still gather is the 2 below the base stone, and up to A above the trails, though, affects, the count of the produce of the prod

broke, sometimes in the course of two months be would develop

On Making Drivers in saleling

a televelly good beckens voice, whereas, in seather case, he might have to want two years before his voice setfled.

Mr. Cocern suggested that thus trust be, to a great extent, a question of health and constitution.

inescellately from the trobs into the also new when their somes beeks, and remained there for the rost of their fives

Mr. Cours and there were some counter-trees who had high tence values.

The Course and there were confer-bences who had high tence values.

The Course and the was coulded intertion of the defectiveness of one removal communitates. There each to be a dis-

irregers of our massed nomenclature. There eight to be a 6afunding future believes what was really a high incore, which was the voice for which Tolks and the aid masters really write (in the aits old) and the fall-site roots, which was intelly different. The modern also voice or combridator was, he believed, never

only high teners.

The Connect thought the modern English also vales was intintion of a class of voce which was now united-a vol

artifically produced.

Mr. Osroma saled if it would be pushis for a singer exerning before a looking-glass to so observe the action of the parts employed in vocalization as in improve his method.

The Character said he could only watch the soline of the 'washib every'

Captain Herrors said, he lessolar the larges well down, by

allowing the longes to full back whilst singing the scale, the voice was made faller.

Mr. Sacanan soid, in the account given by Dr. Berney of the

Handal Occasions which there was a fail of relies in which there were very few controller mentioned, the above were very all most. The controller meant to be despressively another, robe. The Controller with Handal wrote he alta parts for the values themed in Beginsol, and they were meanly undo control-recorn.

he found in Degland, and they were unstall pasts are two teams. In the pasts of the

means on the regression of the fine of Chitache (Bibnes what and The Chitaches), as in the cine of Chitache (Bibnes what has been also as the control of the chitaches). He should be very glid iff soynes could premium a her widers above that the same control of the red in roots. The highest part then westers for make solors was a high teror written on the observation of the state that the state of the control of the control

written for the male counter-toney, coing up to C. which were found in the authors of Percell, Blow, and the componers of that and later times Mr. Course, solved if it were blade that new of these singuistic

The Commun thought not. There were felectic counterteners in Spain in the systemic century, but not in England, and those was no cathedral masse soliton for there. The female morbi. There more few German controlled and favor Preach a and thus it was their were no contrade merts in the French.

these operas had here using by onetrator, but they had first been modeled and schedule Mr. Setences salud in what country controlles were dis-

The Courses said in Italy. Glock wrote his Ovokens for

Mr. Course said there was always been been controlle voices. whather used or not. The Crumman said, Yes. One renson why women lost their voices so reach sooner than men was because they would all sing-

soprano. The greatest difficulty was found in Training Colleges Professor Mercy sold Mr. Sulanese had referred to the abstrace of contrals vocass floor a choros, but he threath he would be ald

contoring had been some by men Mr. Occasing solved of there were new solve instances, healther

Coptain Hyppos mentioned a cuso which he knew of

time, she was listly at any time to less it for two or those days if she were elightly tapped between the shoulders. The Charriest and he was very glad to hour Mr. Browne's

Mr A. J. Estin, F.B.S., and he was not a singer, but sometimes had to speak for a comple of hours, and he forme that drinking a glass of water, which some recommended, was a great

mare. He found the best thing for keeping the value sesies was a Hitle piece of Spanish juice held in the mouth Mr. Lesson Browns said simply to leave penic by the French mode. The selecte areas from a defective manner of breathing

He had already stated the difficulty there was to charging the not any how it was produced, but thought in one do the way o

On Medical Science in relation to the Voice.

better term for it, the falcate being, in his openion, entirely a heed note, and not, so Signar Gurcas seemed to think, coming laters the chest and head water. The emploids did not an down in the falsette. It was fained by nectain folds to the cartihave, by which it was lifted according to the action of the vacal cords. In the production of high notes those folds were lower notes that were relaxed. His accurates was that the enjointly west down with the low nates and nose with the high ones. With regard to nervous loss of voice, it was very frequent, and converted from a regular of senses on from stone fresht for restance. He doubted whether, in the case mentioned by Mr. of nervous last of vaco, the effect of enlyaging, was to produce a shock on the nerves and so restors the action of the puralysed. muscles acting on the vacal cords. With reference to halfing to elimplate moutary, holding at between both and checks like a seller's gold of telescon. He was glad to have heard what the Wished to be successed and the and was intendified by the desire



